

Strictly Private and Confidential

Analysis of Canada's Potential Participation in the REM

July 6, 2017

Blair
Franklin

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Executive Summary

Executive Summary

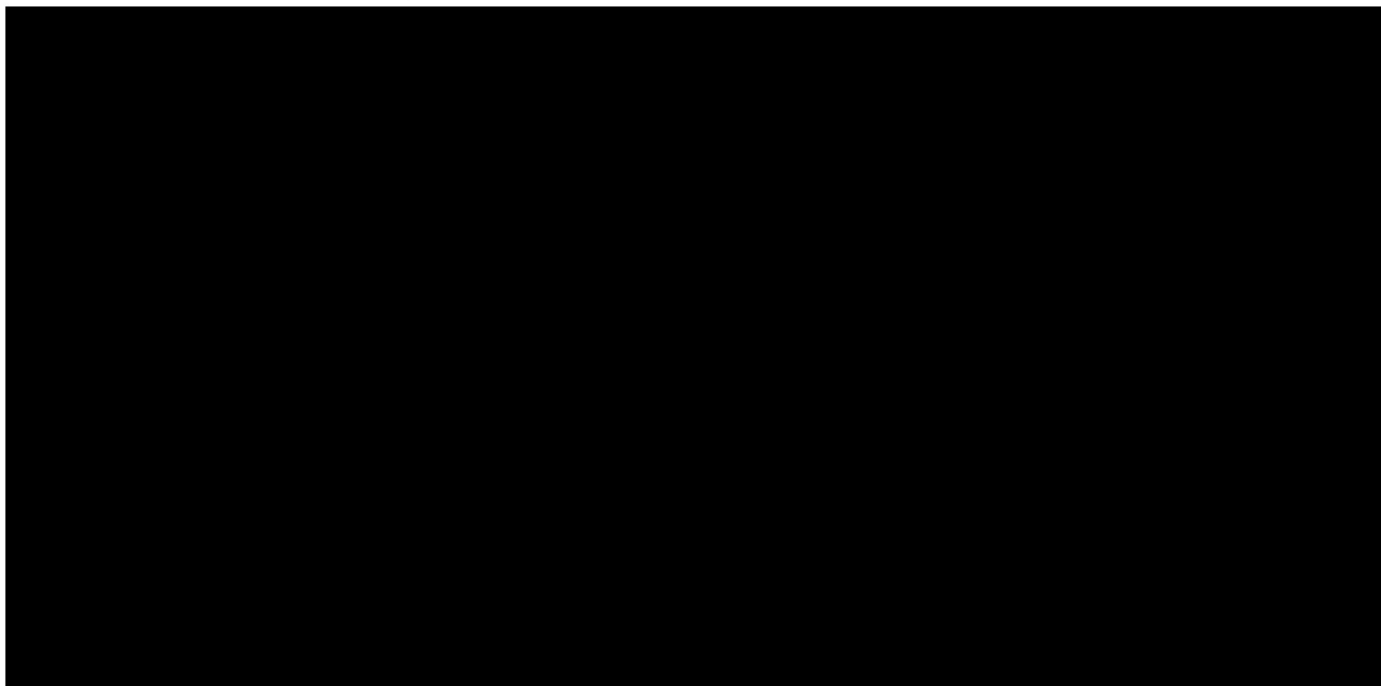
- Blair Franklin was retained by PPP Canada to provide advice and assist Canada in evaluating the project proposal from CDPQ regarding the REM in the Greater Montréal area

- CDPQ has provided estimated capital costs of \$6.3 billion for the REM [REDACTED]
- [REDACTED] Canada's independent cost consultant, Hanscomb Limited, provided an estimated capital of cost [REDACTED] for the REM
- Blair Franklin has relied on the capital cost estimates provided by Hanscomb for the purpose of our analysis

- Blair Franklin has outlined a number of the key considerations that Canada could address through negotiations, including:

- Cost overruns (post-financial close)
- CDPQ selling or refinancing its position
- CDPQ making an outsized return
- Increases to budgeted cost (pre-financial close)
- Ridership risk
- Increase in operating, maintenance and lifecycle costs
- Changes to the revenue model

Executive Summary (continued)





Introduction

Introduction

- Blair Franklin was engaged by PPP Canada on April 11, 2017 with respect to RFP PPP-042. Blair Franklin understands that the primary purpose of the engagement is to provide advice and assist Canada in evaluating its potential financial investment in the Réseau électrique métropolitain ("REM" or the "Project") in the Greater Montréal area
 - The primary deliverables include this investment options valuation report (the "Report") as well as a financial model (the "BF Model") prepared in conjunction with the Report
 - In addition to performing financial analysis and evaluating Canada's potential investment the Project, Blair Franklin is also providing ad-hoc advisory services to Canada through the term of the engagement
 - In addition to advising PPP Canada, Blair Franklin has also held discussions with additional key government stakeholders including representatives from Finance Canada and Infrastructure Canada
- Blair Franklin understands that Canada has made a commitment to improve and expand public transit systems across Canada. We further understand that additional funding for public transit infrastructure was announced in the Fall Economic Statement 2016 (form to be determined)
- The key objectives of the Report are to summarize the analysis of the selected potential investment options available to Canada (the "Canada Interest") for the REM further discussed herein
 - In addition to the investment structure proposed by CPDQ, Blair Franklin has analyzed alternative investment forms, options and structures for the Canada Interest and has performed detailed financial and sensitivity analysis thereon
 - Blair Franklin's analysis of the alternative forms of the Canada Interest are based on a discounted cash flow analysis included in the BF Model
 - The sensitivity analysis performed on the alternative forms of the Canada Interest are based on changes to key assumptions such as capital and operating costs estimates, ridership forecasts and pricing expectations
- Blair Franklin understands that the result of the analysis in the Report and BF Model will be used to inform PPP Canada's assessment of the Project and subsequent recommendation with respect to financial support for the Project by Canada

Scope of Review, Assumptions and Limitations

Scope of Review

- Blair Franklin has relied on both public and non-public information related to the REM, including the following:
 1. Public documents related to the REM including but not limited to project brochures or overviews, technical briefings, financial information notes, agreements and other material documents
 2. Access to an electronic data room prepared by PPP Canada
 3. [REDACTED]
 4. [REDACTED]
 5. Draft independent ridership forecasting information prepared by HDR, Inc. for PPP Canada (the "HDR Report")
 6. REM costing report prepared by Hatch Infrastructure for CDPQ (the "Hatch Report")
 7. Independent costing report prepared by Hanscomb Limited for PPP Canada (the "Hanscomb Report")
 8. Tender documents related to construction, design, engineering and operation of the REM
 9. Contracting documents related to construction, design, engineering and operation of the REM
 10. [REDACTED]
 11. [REDACTED]
 12. Draft summary of the proposed terms and conditions of Canada's investment in the REM
 13. Discussions with PPP Canada, Finance Canada and Infrastructure Canada
 14. Discussions with HDR and Hanscomb on ridership and costs, respectively
 15. Discussions with CDPQ and [REDACTED] with respect to the Proposed Structure (as defined herein)⁽¹⁾
 16. Academic research, equity research and general industry reports
- Blair Franklin has not independently verified any of the assumptions contained in the information provided by PPP Canada, their representatives or publicly disclosed by CDPQ

(1) In discussions with CDPQ, [REDACTED]

Assumptions, Limitations and Conditions

- In conducting its analysis, Blair Franklin has:
 - Relied upon, without independent verification, the completeness, accuracy and fair representation of all information related to the Project that was provided to Blair Franklin by PPP Canada and their representatives or is publicly available
 - Based its analysis on prevailing market conditions
 - Acted under the assumption that there has been no material change in facts / circumstances of the information provided or otherwise available to Blair Franklin
- Analysis is at the date hereof
- We note that the preparation of this analysis is a complex process, and as such, all elements of Blair Franklin's analysis must be considered collectively
- This report is preliminary, subject to change and solely for the use of Canada and its representatives

All amounts are in CAD, unless otherwise stated

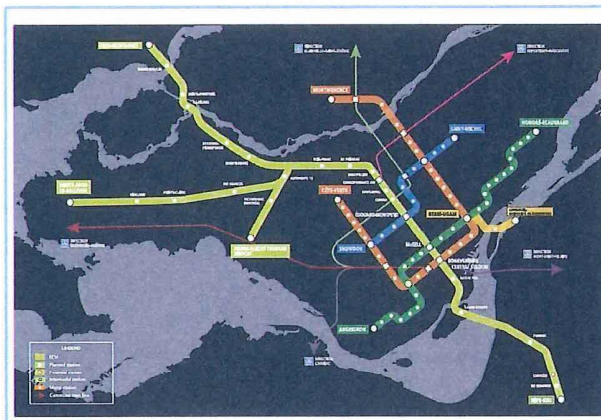
All references to years are calendar years, unless otherwise stated



Overview of the REM

Overview of the REM

- The REM will be a fully automated, electric light rail transit system ("LRT") comprised of 67 kilometres of dedicated rail lines including four branches connecting downtown Montréal, the South Shore, the West Island, the North Shore and Pierre-Elliott Trudeau Airport
 - It is anticipated that 50% of the tracks of the REM will occupy existing rail corridors and 30% will follow existing highways
 - Project will result in two new high-frequency public transit service lines to key employment hubs
- Once completed, it is anticipated that the REM will be the fourth largest automated transportation system in the world
 - The REM also represents the largest public transportation infrastructure investment for the region since the Montréal metro (inaugurated in 1966)
 - Implementation of the REM is underway with estimated operation of the first trains in 2020
- CDPQ has provided estimated capital costs of \$6.3 billion [REDACTED] the Hanscomb Report provided an estimated cost [REDACTED] for the REM – see Appendix A for a summary capital cost comparison of the two reports
 - The REM is currently in the RFP stage with final capital costs yet to be determined



Estimated Capital Costs (in millions)

	CDPQ	Hanscomb ⁽¹⁾
Direct Cost	[REDACTED]	[REDACTED]
Indirect Cost	[REDACTED]	[REDACTED]
Contingencies	[REDACTED]	[REDACTED]
Mark-Up	[REDACTED]	[REDACTED]
Total Estimated EPC & Rolling Stock Costs	[REDACTED]	[REDACTED]
Owner Costs	[REDACTED]	[REDACTED]
Other Risks (Escalation)	[REDACTED]	[REDACTED]
Total Estimated Capital Costs	[REDACTED]	[REDACTED]

Overview of the Proposed Structure

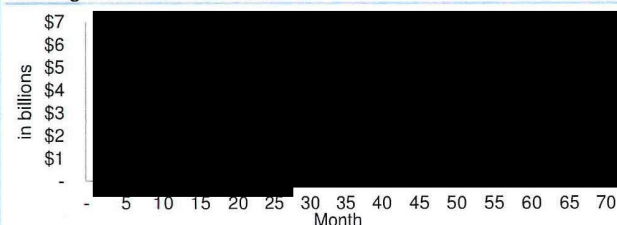
- Based on the broad guidelines provided by the Government of Québec ("Québec"), CDPQ is currently developing the REM with oversight of the planning, financing, implementation and operation of the Project

- CDPQ proposed an equity-only financing structure [REDACTED] with CDPQ investing \$2.7 billion while Canada and Québec would each invest \$1.283 billion⁽¹⁾

- CDPQ will receive an 8% priority return (the "Priority Return") [REDACTED]

CDPQ Proposed Funding Structure (in millions)	Equity Investment ⁽²⁾	% Ownership ⁽³⁾
CDPQ Infra	\$2,721	51.0%
Government of Québec	\$1,283	24.5%
Government of Canada	<u>\$1,283</u>	24.5%
Total Estimated Equity Contribution	\$5,287	

Funding of Construction Costs



Overview of the Proposed Structure (continued)

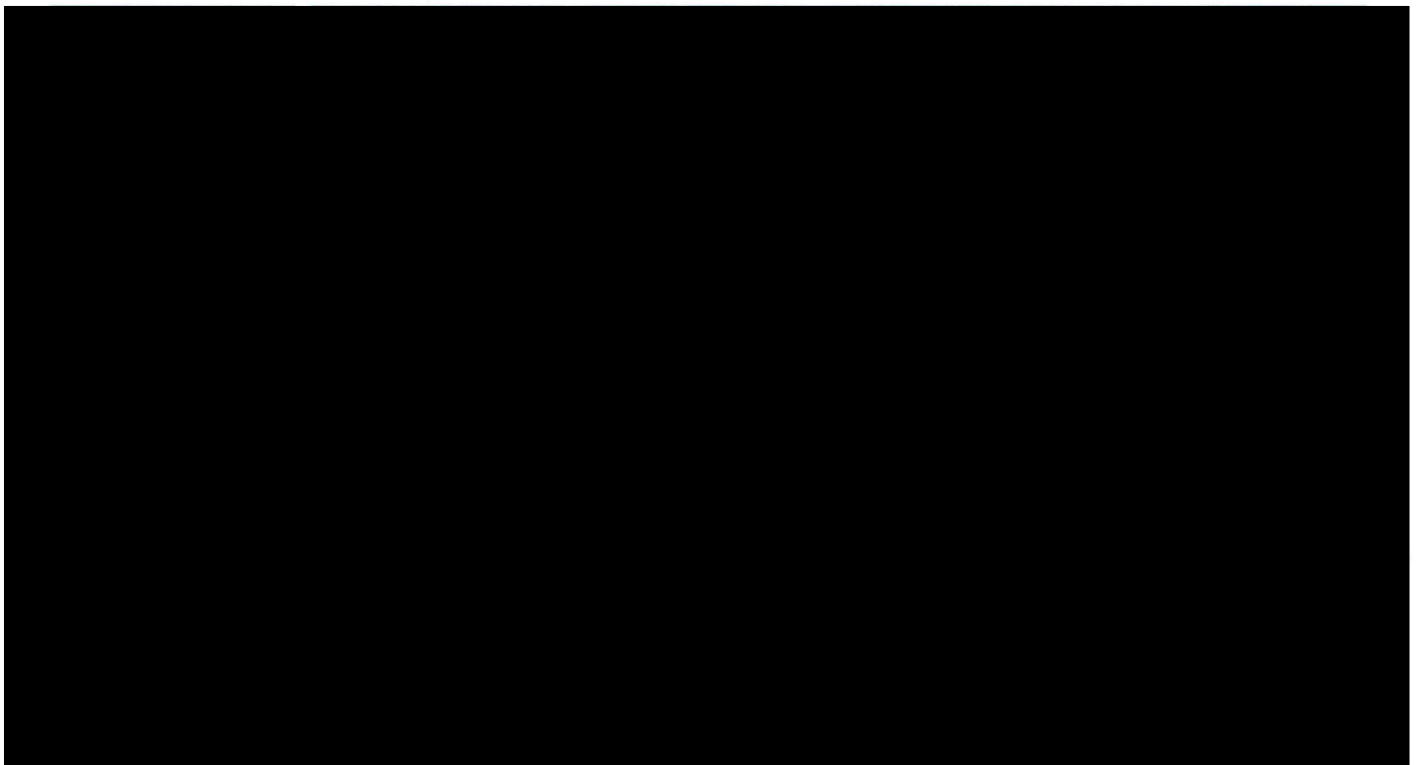
- CDPQ would receive \$2.7 billion in [REDACTED] for its investment while Canada and Québec would each receive \$1,283 million [REDACTED]
- [REDACTED] 8.0% first priority cumulative dividend
- [REDACTED] 3.7% cumulative dividend that is subordinate to the cumulative dividend [REDACTED]
- [REDACTED] receive no return until the [REDACTED] have received their Priority Return

- The equity cash flow will be provided in stages based upon pre-agree proportions as per the table below

Equity Cash Flow Waterfall			
[REDACTED]			
Stage 1	100.0%	0.0%	0.0%
Once [REDACTED] have received their cumulative 8% priority return, then:			
Stage 2	28.0%	36.0%	36.0%
Once [REDACTED] have received their cumulative 3.7% return, then:			
Stage 3	51.0%	24.5%	24.5%

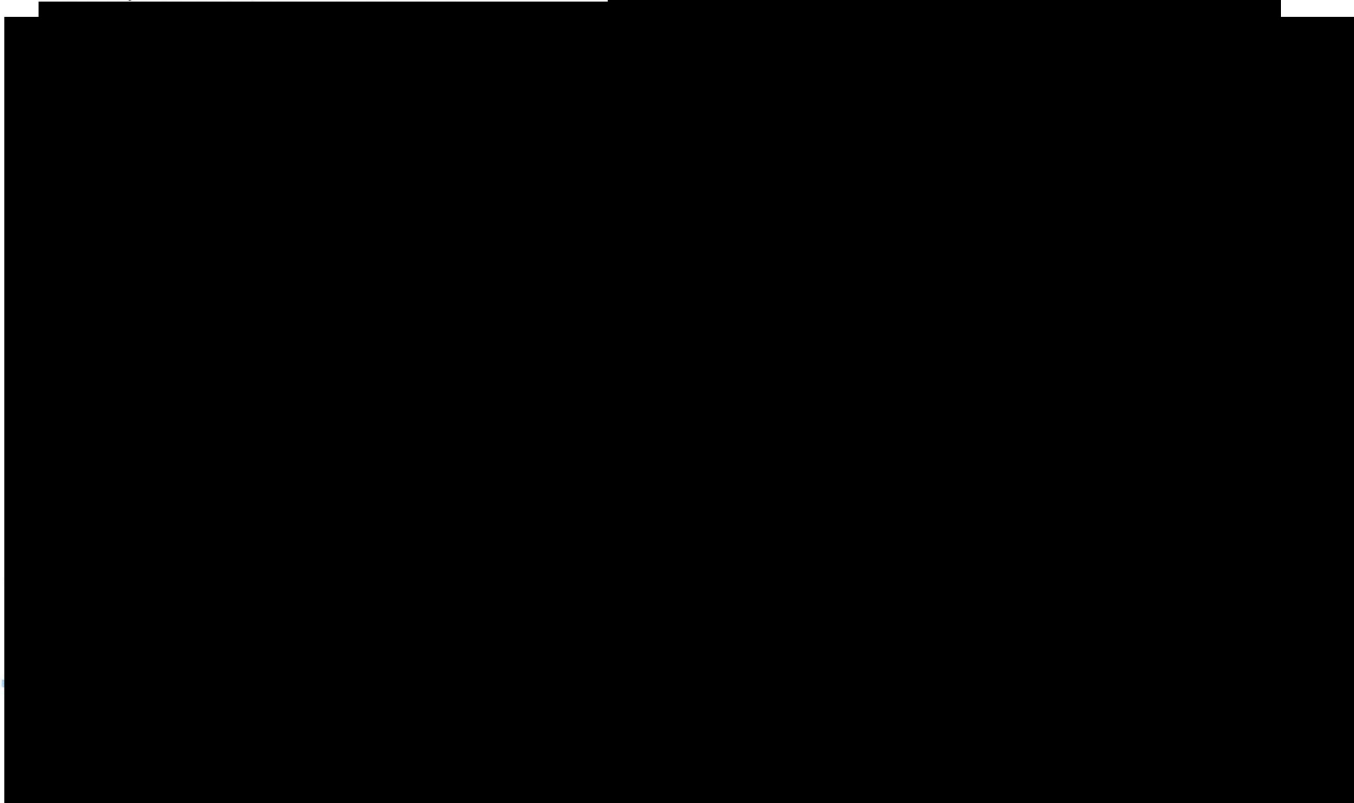
Non-Commercial Aspects of the Proposed Structure

- Canada's investment in the REM through the [REDACTED] is not reflective of a commercial transaction



Use of Leverage

- The Proposed Structure does not consider the use of any leverage in the capital structure

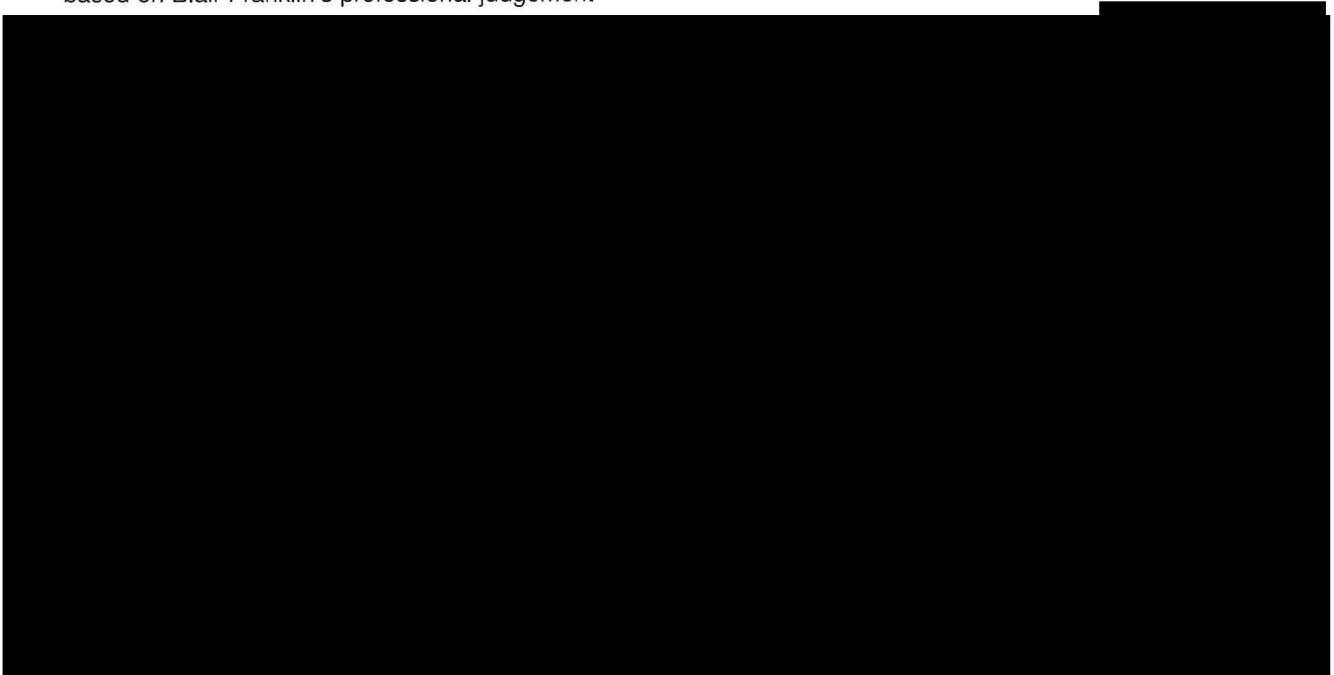




Overview of the BF Model

Overview of the BF Model

- Blair Franklin developed the BF Model based on the Proposed Structure, cost information provided by the Hanscomb Report, ridership information provided by the SDG and HDR reports, and valuation assumptions based on Blair Franklin's professional judgement



All capital costs in Blair Franklin's analysis are based on the monthly assumptions provided in the Hanscomb Report


Key Assumptions

- The following table provides an overview of the key assumptions driving the forecast free cash flows of the REM in the BF Model
 - Blair Franklin utilized the independent capital cost assumptions from the Hanscomb Report – [REDACTED]
 - Sensitivity analysis was performed in the BF Model by flexing the key assumptions

Key Assumptions	Source (Base Case)	Sensitivity		
		Downside	Base	Upside
Timing Assumptions				
Valuation Date	[REDACTED]			
Financial Close				
End of Funding Period				
Substantial Completion				
Model End of Term				
Capital Cost Assumptions (in millions)				
South Shore Branch	Hanscomb Report	[REDACTED]		
Deux-Montagnes Branch	Hanscomb Report			
Sainte-Anne-de-Bellevue Branch	Hanscomb Report			
Airport Branch	Hanscomb Report			
General Costs	Hanscomb Report			
Risk Provision	Hanscomb Report			
Operating Costs (in millions)				
Operating Costs (Nominal)	[REDACTED]			
Lifecycle Costs (Nominal)				
Owner Costs (Nominal)	Hanscomb Report ⁽¹⁾			
Ridership Assumptions				
Run-Rate Passenger KMs	[REDACTED]			
Base Tariff	Blair Franklin Assumption			
Other Assumptions				
Inflationary Factor	Blair Franklin Assumption			

(1) Adjusted for a 50-year term

Proposed Financing Structure

- Blair Franklin utilized the revised costs as outlined in the Hanscomb Report
- 

Analysis of the Canada

Cash Flows to the [REDACTED]

- Assuming the estimated capital costs in the Hanscomb Report, the Proposed Structure and the absence of a terminal value, the chart below provides an overview of the annual Project cash flows and the cash flows (dividends) available [REDACTED] throughout the 50-year operating term of the model [REDACTED]

Discount Rate Considerations – Proposed Structure

- To determine the value [REDACTED] Blair Franklin analyzed the stream of cash flows provided [REDACTED] under the Proposed Structure and calculated the present value of that stream of cash flows assuming a market-based discount rate

- The tables below provides an overview of target infrastructure rates of return for select Canadian public pension funds and infrastructure funds. The average target returns observed of 9.6% for Canadian public pension funds and 12.4% for select Canadian infrastructure funds provides a proxy for the equity return requirement of what an independent third-party would seek for providing equity to a project such as the REM

Infrastructure Arms of Canadian Public Pension Funds	Target Return ⁽¹⁾
Borealis Infrastructure (OMERS)	9.0%
CPPIB	10.0%
Ontario Teachers' Pension Plan	10.9%
Public Sector Pension Investment Board	8.6%
Mean	9.6%
Median	9.5%

Select Canadian Infrastructure Funds	Target Return ⁽¹⁾
Brookfield Infrastructure Partners	13.5%
Brookfield Renewable Partners	15.0%
Fiera Axiom Infrastructure Canada	12.0%
Fiera Axiom Infrastructure North America	10.5%
Macquarie Infrastructure Partners II (MIP II)	12.5%
Macquarie Infrastructure Partners III (MIP III)	12.0%
Meridian Infrastructure North America II	11.5%
Mean	12.4%
Median	12.0%

Discount Rate Considerations – Proposed Structure (continued)

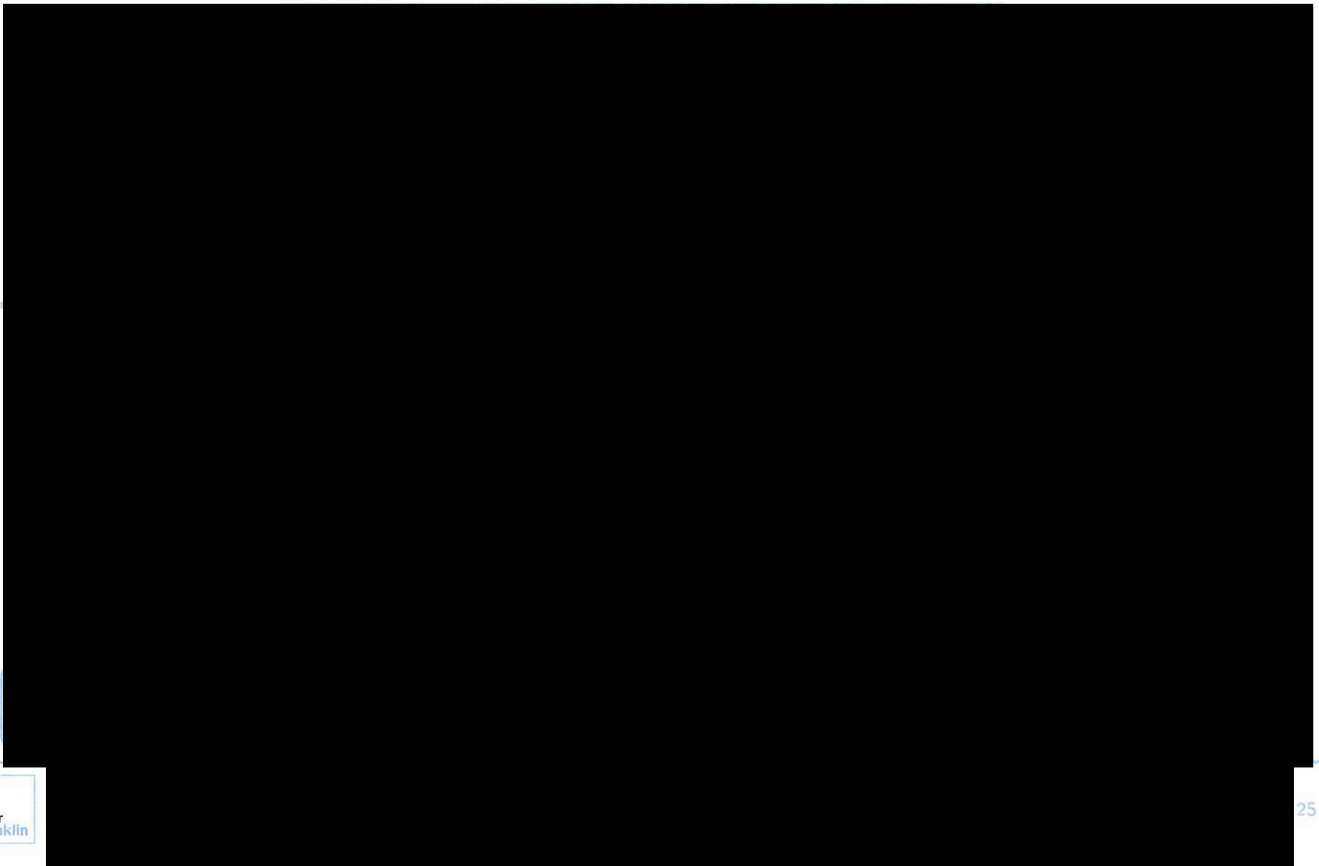
- The discount rate [REDACTED] should appropriately reflect the risk of the underlying cash flows. [REDACTED]

- In arriving at its illustrative discount rate range in the analysis [REDACTED] Blair Franklin considered all the risks above, the market discount rate shown on the previous page and the non-commercial aspects of the Proposed Structure outlined on page 15
 - Non-commercial aspects of the Proposed Structure increases the risk and the return a commercial investor would seek
 - Priority return concept atypical in large scale, PPP infrastructure investments
 - No inclusion of debt in the capital structure creates a higher cost of capital – higher revenue requirement in order for Canada to achieve its target return
 - Market discount rates shown on the previous page are not reflective of the unique risks attributed to the Project. An independent third-party would require a premium on its expected return relative to a typical infrastructure investment
- Once in operation, a lower discount rate would likely apply as some risks will have been removed

Blair Franklin has selected an illustrative discount rate range of 14% to 16% [REDACTED]

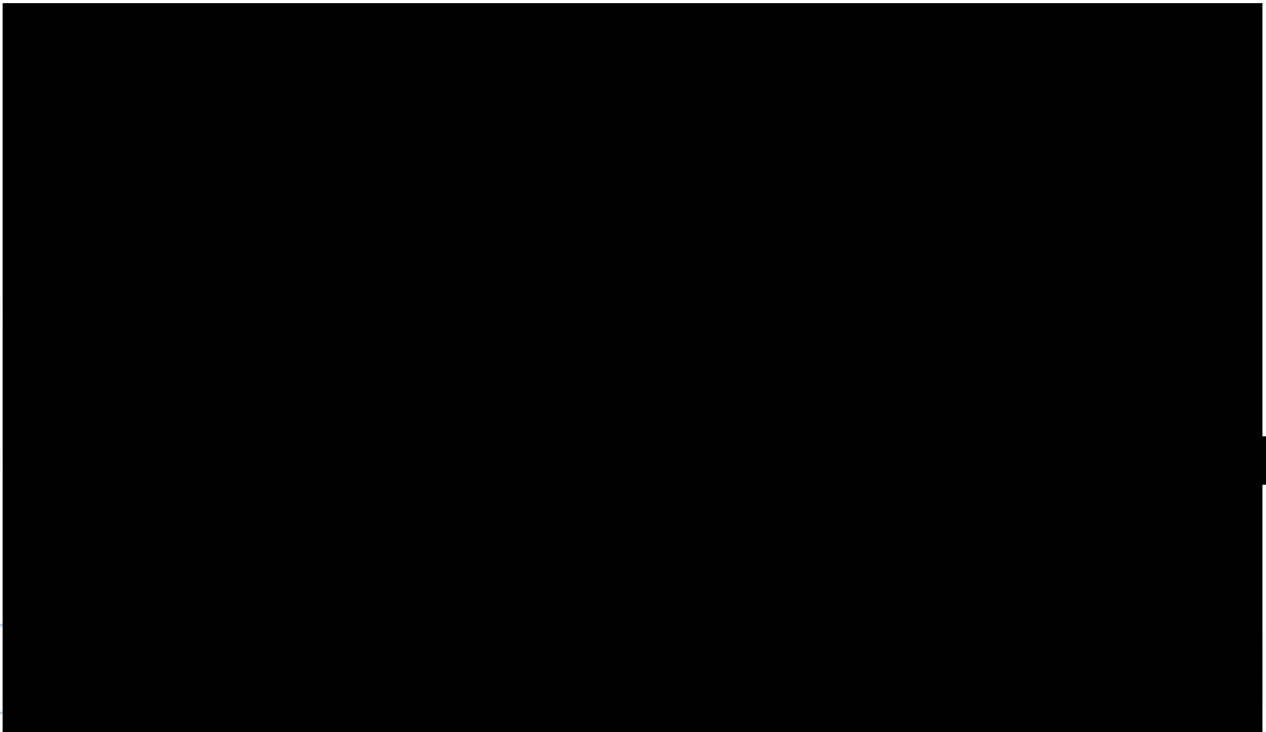
Analysis of the [REDACTED]

- Based on the cash flow profile on page 22, the table below provides a value range [REDACTED] under the Proposed Structure as per the illustrative discount rate range noted on the previous page



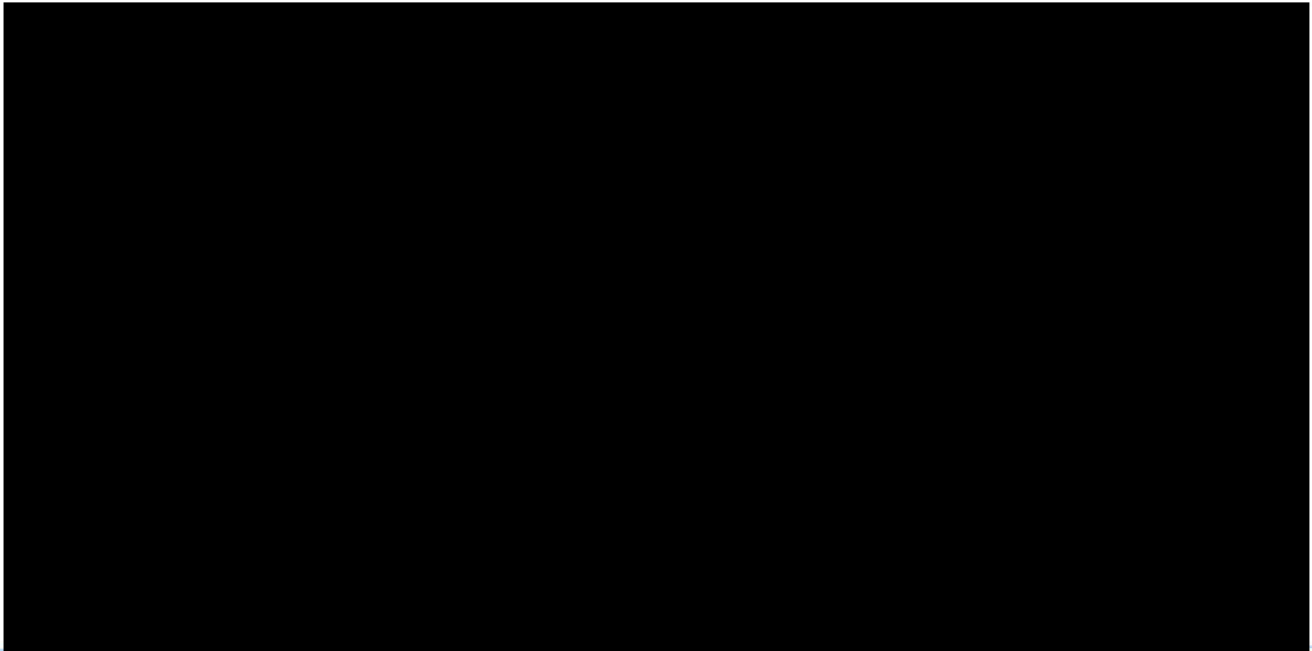
Analysis of the [REDACTED] (continued)

- Further to the analysis on the previous page, Blair Franklin reviewed the impact of the assumptions outlined in the Downside and Upside Cases outlined on page 19 assuming the discount rate range of 14% to 16%



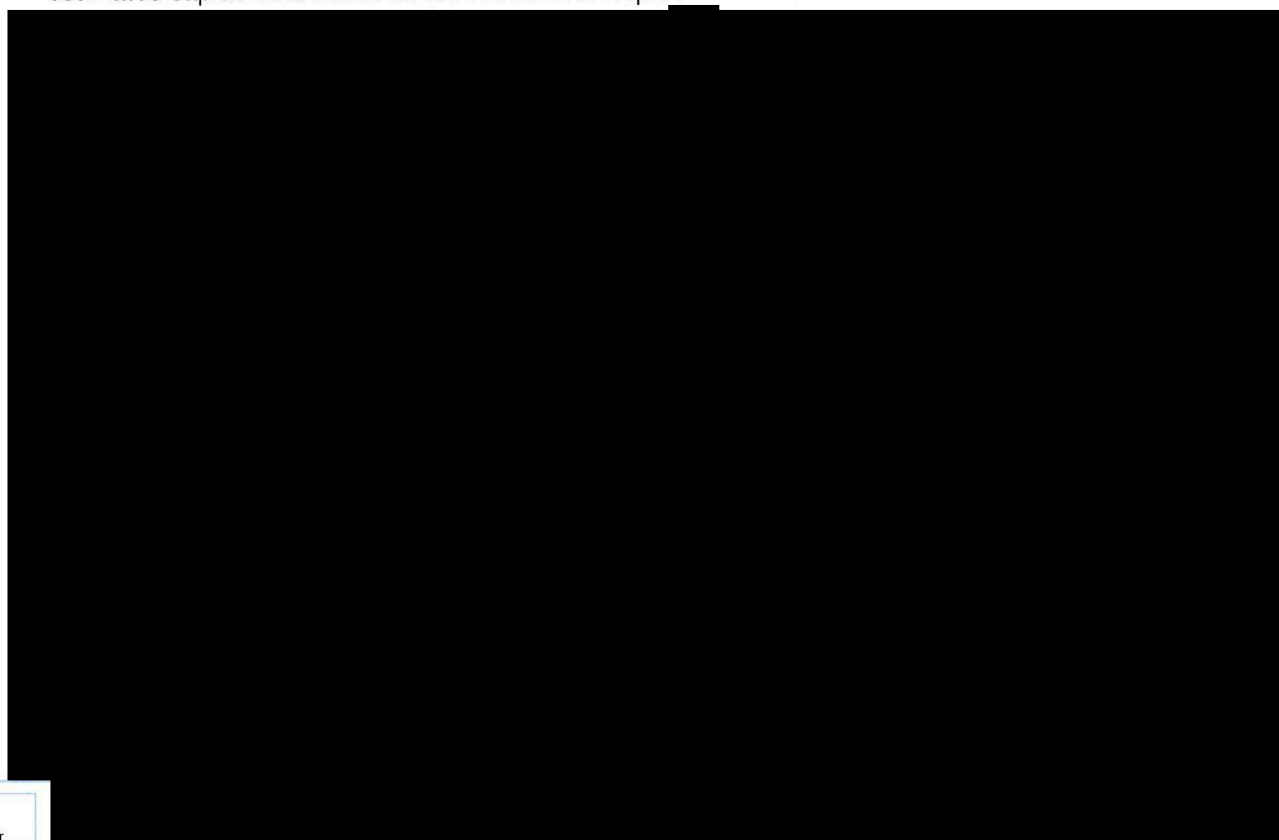
Sensitivity of the Analysis of the [REDACTED]

- Blair Franklin has reviewed the impact on Canada's investment with respect to a change in the estimated ridership as forecast in the SDG Report
 - HDR Report did not provided a detailed month-by-month ridership forecast but generally viewed SDR Report's assumptions as reasonable in the circumstances
 - Potential changes to ridership discussed in the HDR Report from the levels used in the SDG Report are within the sensitivity range shown in the table below



Sensitivity of the Analysis of the [REDACTED]

- Blair Franklin has reviewed the impact on Canada's investment with respect to a change in the estimated capital cost based on the Hanscomb Report

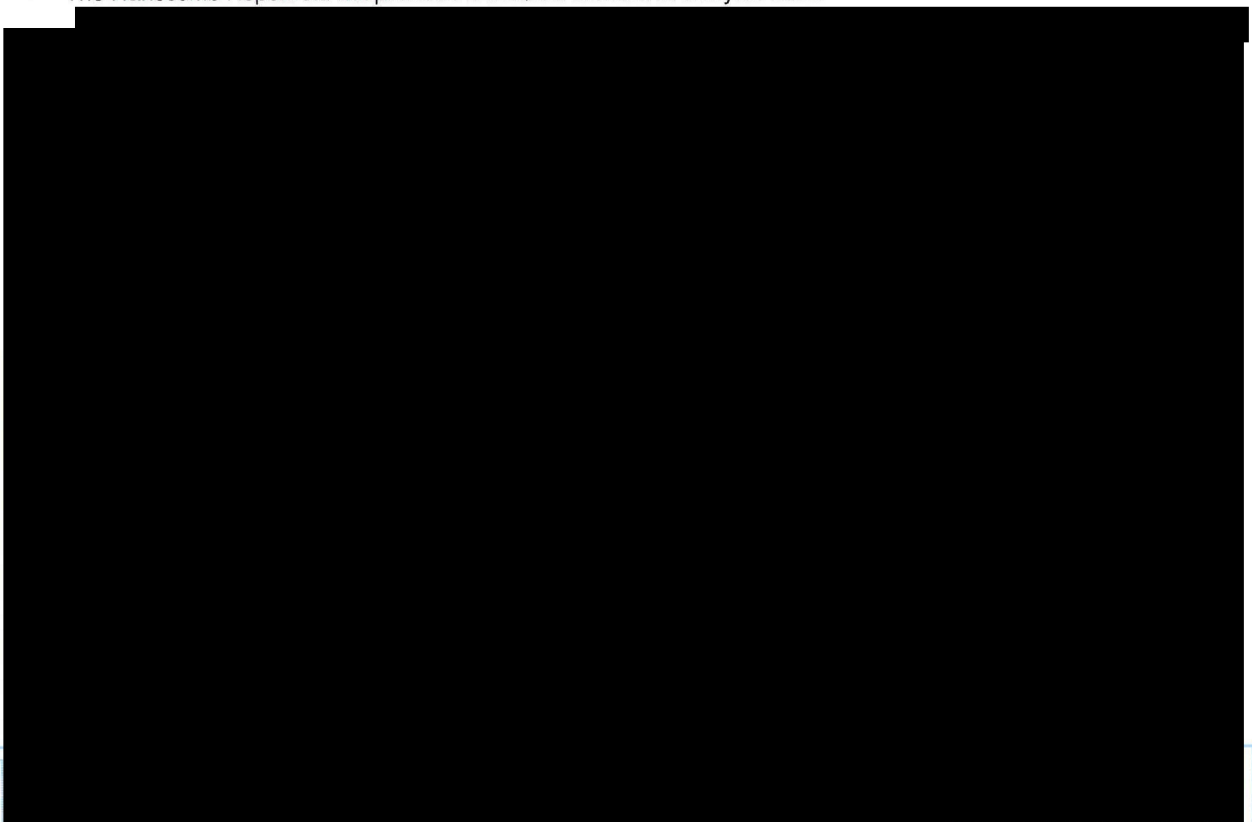


Sensitivity of the Analysis of the [REDACTED]

- Blair Franklin has reviewed the impact on Canada's investment assuming changes to the forecast operating and maintenance costs of the Project
 - The Hanscomb Report did not provided a detailed forecast of operating and maintenance costs

Sensitivity of the Analysis of the [REDACTED]

- Blair Franklin has reviewed the impact on Canada's investment assuming changes to the forecast lifecycle costs of the Project
 - The Hanscomb Report did not provided a detailed forecast of lifecycle costs



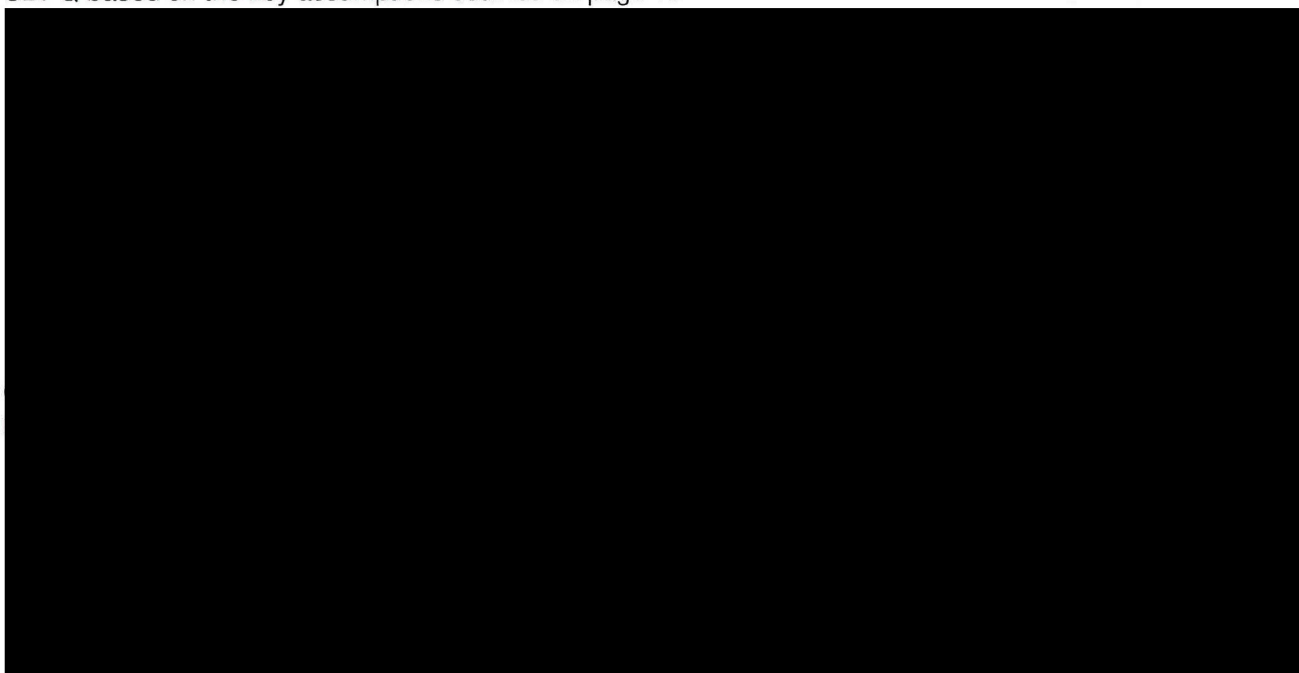
Discount Rate Considerations – Proposed Structure, CDPQ

- To determine the value of [REDACTED], Blair Franklin analyzed the stream of cash flows provided [REDACTED] under the Proposed Structure and calculated the present value of that stream of cash flows assuming a discount rate reflective of the risks [REDACTED]
- Discount rate for the [REDACTED] would be below the selected discount rate discussed for the [REDACTED] on page 24. The risk of the equity cash flows of the [REDACTED] reflect a mix of debt-like risk (given they have the right to certain cash flows) and equity-like risk [REDACTED]
- [REDACTED]
- See page 49 – 53 for a detailed build-up of the estimated cost of debt used below
- Cost of equity selected reflects the commercial discount rate of a typical equity investors as seen on page 23
- Blair Franklin has selected [REDACTED] discount rate range [REDACTED] for the [REDACTED] which reflects the commercial discount rate for a leveraged project whose right to cash flow would be similar to the [REDACTED]

Discount Rate Range	Low	-	High
Cost of Debt	4.0%	-	5.0%
% Debt	65.0%	-	70.0%
Cost of Equity	10.0%	-	12.0%
% Equity	35.0%	-	30.0%
Discount Rate Range	6.1%	-	7.1%
[REDACTED]			

Impact of Sensitivity Analysis on [REDACTED]

- Blair Franklin reviewed the net impact of the Downside, Base and Upside cases on the key outputs for CDPQ based on the key assumptions outlined on page 19



- Impact on the value of [REDACTED] would be as per the analysis on the previous pages of the [REDACTED]

Comparison of the Sensitivity Analysis on Each Party

- Blair Franklin reviewed the net impact of the Downside, Base and Upside cases on the key outputs for each party based on the key assumptions outlined on page 19 as well the selected discount rate ranges



Comparison of the [REDACTED] and BF Model

- A key difference between the [REDACTED] and the BF Model is the inclusion of a terminal value in the [REDACTED] which provides almost all of Canada and Québec's return as seen in the table below

- [REDACTED]
- Despite being an accepted valuation methodology, Blair Franklin did not include the benefit of any terminal value given the theoretical or synthetic nature of the calculation in this case and the unlikelihood of such an event occurring.
- Instead, Blair Franklin increased the term of the operating period in the BF Model to 50 years from [REDACTED] CDPQ's analysis

Estimated IRR	[REDACTED]		Blair Franklin Model
	Pre-Terminal Value	Post-Terminal Value	
CDPQ	[REDACTED]		8.8%
Government of Canada			3.7%
Government of Québec			3.7%
Base Tariff			\$0.73

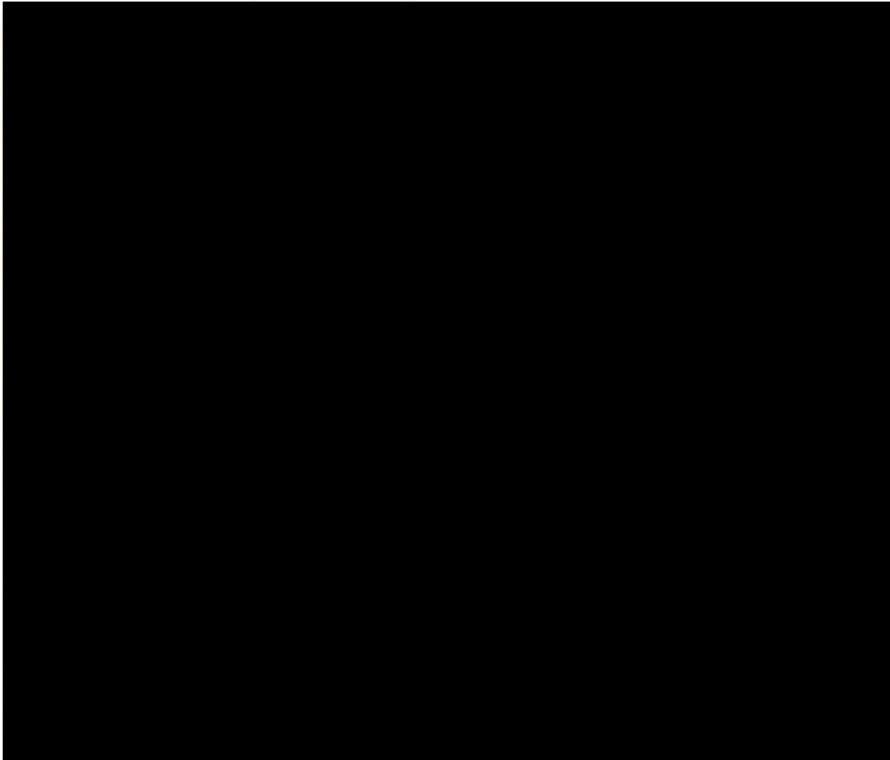

- Excluding the potential cash flows from the terminal value has a significant impact on the potential value and returns, particularly those of Canada and Québec
 - Increasing the term of the model increases the potential return to Canada and Québec given the increased time period and additional cash flows estimated in the later years
 - These cash flows would be heavily discounted under a market valuation scenario given their long-dated nature
 - Increasing the model term requires a significant change to the annual major maintenance reserve account ("MMRA") contribution in 2053
 - Blair Franklin has assumed MMRA contributions will be reset at the [REDACTED] – in practice, MMRA contributions will be adjusted over time based on revised lifecycle cost estimates



Overview of the Risks to Canada

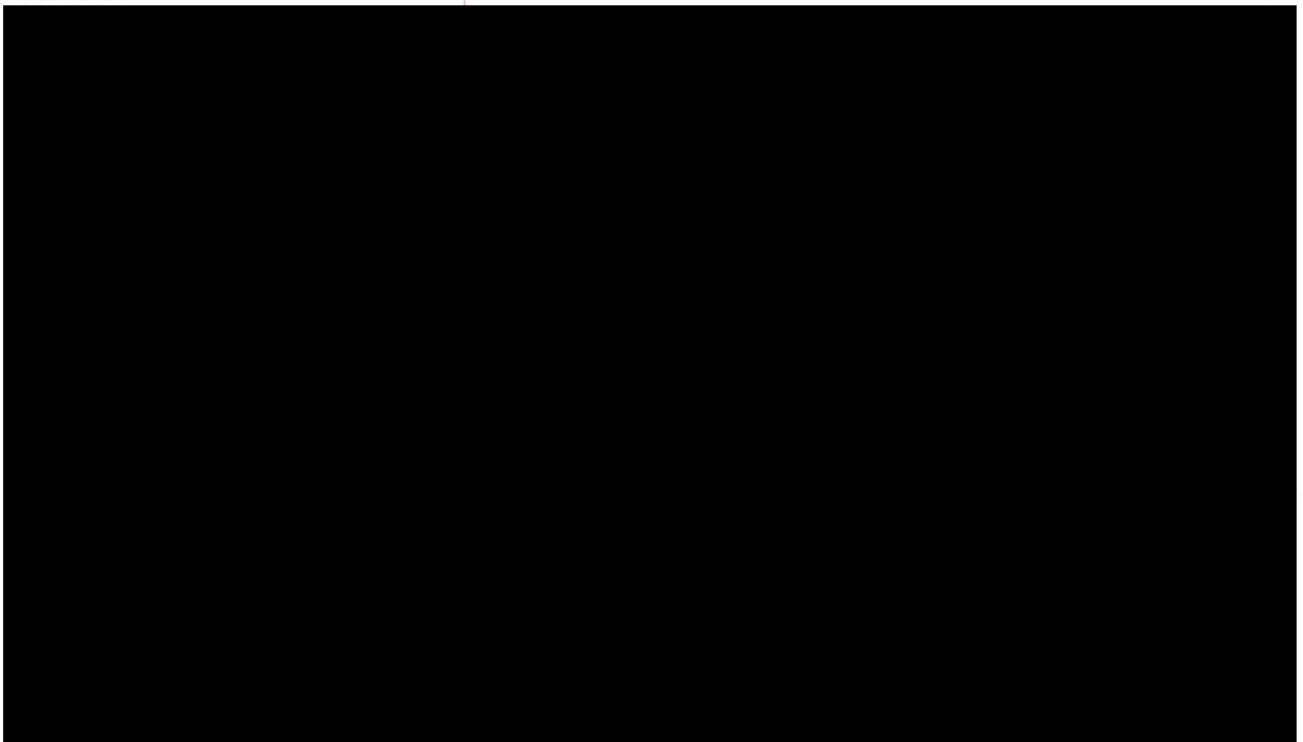
Overview of the Risks to Canada

- The following provides a list of the key risks to Canada identified by Blair Franklin which we explain in greater detail in the following section as well as the potential mitigants of each risk

1	Cost overruns (post-financial close)	
2	CDPQ selling or refinancing its position	
3	CDPQ making an outsized return	
4	Increases to budgeted cost (pre-financial close)	
5	Change in forecast ridership	
6	Increase in operating, maintenance and lifecycle costs	
7	Changes to the revenue model	
8		

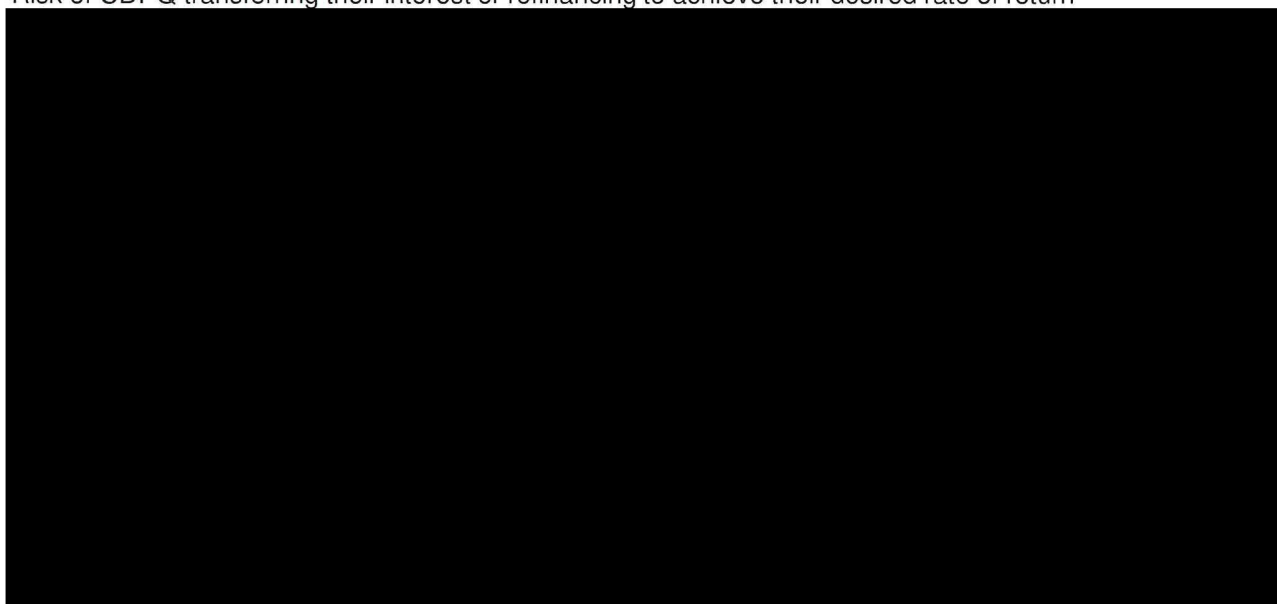
1) Cost Overruns (Post-Financial Close)

- Canada may be required to make additional equity contributions or provide additional support to ensure successful completion of the Project should the [REDACTED] be unwilling or unable to fund cost overruns



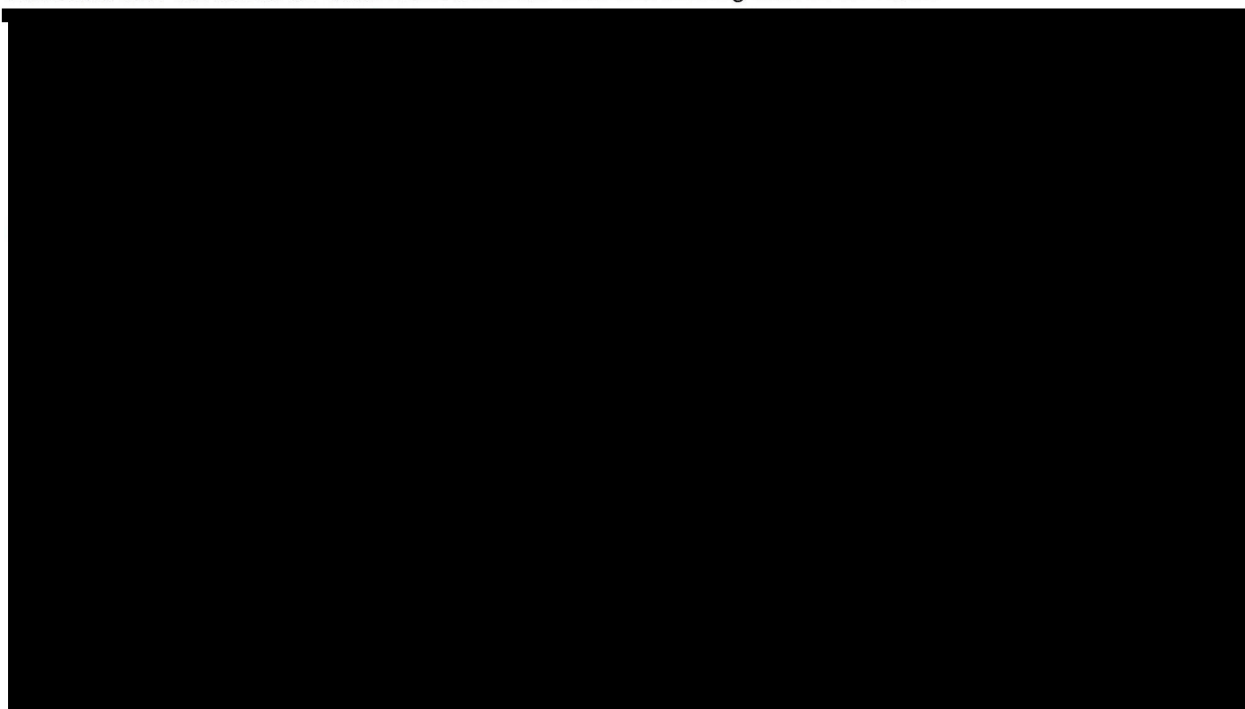
2) CDPQ Sells or Refinances

- Risk of CDPQ transferring their interest or refinancing to achieve their desired rate of return



3) CDPQ Making an Outsized Return

- Risk that CDPQ makes an outsized return with Canada making little or no return



4) Increases to Budgeted Costs (Pre-Financial Close)

- Despite the expectation that the [REDACTED] will take on the majority of the cost overrun risk, there is the potential for significant engineering and design changes which could result in higher costs to the Project causing CDPQ to invest more capital and receive additional [REDACTED]
 - If [REDACTED] costs come in significantly above the current budget, [REDACTED]
 - However, CDPQ may choose to fund additional costs rather than [REDACTED]
 - [REDACTED] would be further subordinated without any increases to the revenue of the Project
 - Should costs associated with design changes pre-financial close be significantly larger than anticipated, there is the risk that Canada is asked to contribute additional equity or provide additional support to ensure successful completion of the Project
 - Significant risk given the early stage of engineering and design – design changes would likely result in additional costs
 - It is our understanding that additional cost overruns outside of the [REDACTED]
- Mitigants to Increases to Budgeted Costs
 - Cost overruns that are the responsibility of CDPQ or additional capital required due to design changes could be funded immediately by CDPQ when they are incurred [REDACTED]
 - Canada could keep its equity contribution set at the [REDACTED] with no change to its share of equity cash flows [REDACTED]
 - CDPQ would want to receive an equity position pro-rata to its contribution which would have [REDACTED]
 - Rigorous risk and sensitivity analysis required to ensure all potential eventualities are prepared for

5) Ridership Risk

- Ridership represents a key risk to Canada given the Priority Return structure results in Canada bearing a greater proportion of this risk than CDPQ
 - Decrease in ridership results in a potential delay of Canada receiving its equity cash flows
 - Cash flows become even more back-end loaded, if any are received at all
 - A [REDACTED] decrease in ridership is the threshold at which Canada receives no return during the 50-year term of the BF Model
 - Revenue ladder in place to reduce Base Tariff in situations where ridership is significantly above forecasted levels to avoid CDPQ making an outsized return
- Mitigants to Ridership Risk
 - Ensure adequacy of independent ridership studies given significant impact on Canada's potential return
 - Ensure flexibility in fare pricing if changes are required to increase ridership
 - Ability to lower rates if ridership is below expectations similar to Union Pearson Express in Toronto
 - Detailed review of agreements and subsidies to be provided by Québec to ensure adequate protections are in place to ensure operating subsidies are provided to reduce fare prices and ensure smooth operation of the Project

6) Operating, Maintenance and Lifecycle Costs

- There is the potential that operating costs will be above levels contemplated in the model
 - Given the Proposed Structure, increased operating costs disproportionately impact the return of the [REDACTED] given it reduces the likelihood of CDPQ achieving its 8% Priority Return
 - Delays the timing of dividends to the [REDACTED]
 - [REDACTED]
 - While CDPQ is responsible for delivering operating results, the Proposed Structure provides limited incentive to deliver a lower cost solution as the [REDACTED] absorb a large portion of the risk
 - Efficient operation is important to the success of the overall project as operations will impact customer experience and ultimately impact ridership levels
- Mitigants to Operating Cost Risk
 - Ensure adequacy of assumptions and analysis in cost and ridership studies - [REDACTED]
 - Rigorous risk and sensitivity analysis required to ensure all potential eventualities are prepared for and can be covered under the Proposed Structure without having a significant negative impact on the [REDACTED]
 - Ensure Québec subsidy agreement is structurally sound and province will continue to back the Project even if project economics do not go as planned
 - Detailed due diligence and negotiation to ensure sufficient protections and guarantees are in place at the regional and provincial level
 - Potential to outsource operating and maintenance agreement to independent third-party (e.g. MTR) at a fixed cost who would take on the risk of delivering operating metrics within cost assumptions
 - Could create a mechanism that reduces the [REDACTED] Priority Return if operating cost projections are not met providing an incentive for CDPQ to deliver on operating costs

7) Change in Revenue Model

- Given the long-term nature of the Project, there is the potential that the ownership and financing structure of large transportation projects may change over time
 - Government's may be asked to compromise their ownership interest in the process
 - [REDACTED]
- Mitigants to Change in Revenue Model Risk
 - Ensure agreements have flexibility to deal with potential refinancing issues and all parties are treated equally in the event of a refinancing
 - [REDACTED]

8



Summary of Key Risk Mitigants

- The following provides a summary of the key risk mitigants Canada could employ to protect itself against the risks discussed in this section and reflect a more commercial structure

I.

II.

III.

IV.

V.

VI.

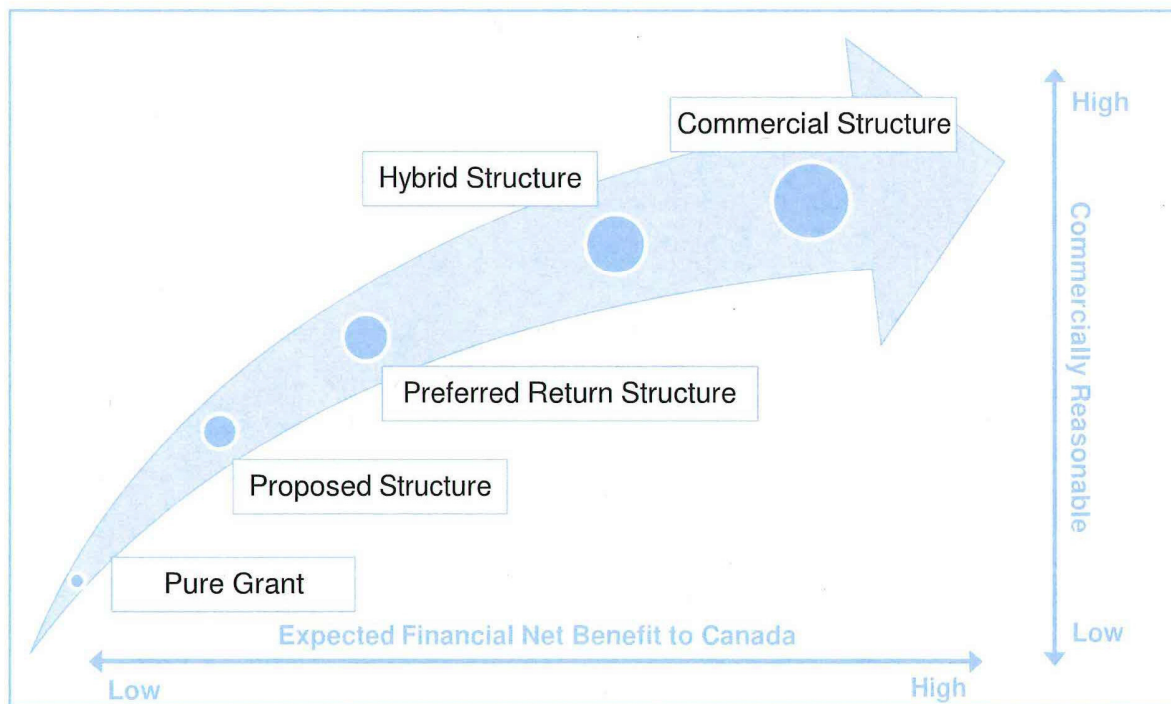
VII.

VIII.

Review of Alternative Scenarios

Spectrum of Investment Options for Canada

- Canada has a spectrum of investment options for its potential participation in the REM
- The options available to Canada are numerous and include, but are not limited to, those outlined below



Overview of Alternative Scenarios

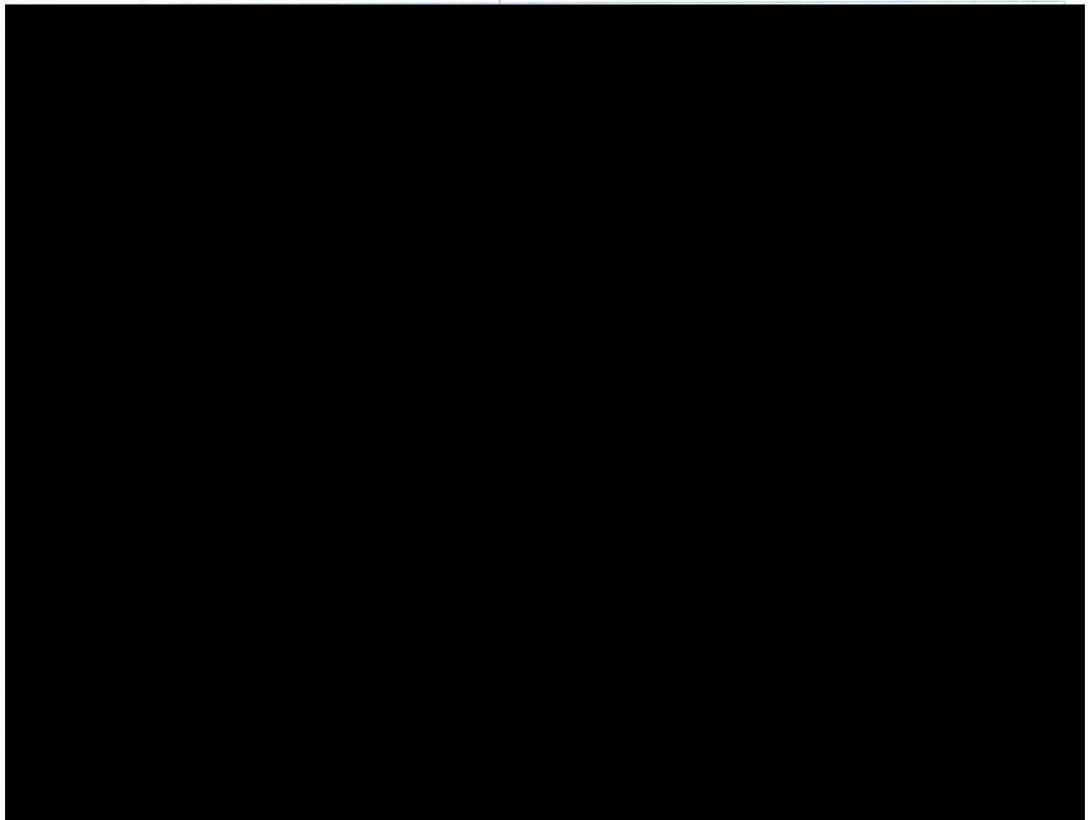
Pure Grant

Proposed
Structure

Preferred
Return
Structure

Hybrid
Structure

Commercial
Structure



Discount Rate Considerations – Alternative Scenarios

Discount Rate Considerations – Cost of Debt

- Blair Franklin has reviewed the credit ratings and indicative new issuance spreads for several issuers considered to be similar to the REM for purposes of estimating appropriate credit spreads for the Project⁽¹⁾
 - Estimating credit spreads is a complex matter especially in light of the fact there are no active discussions with CDPQ on how the debt could be structured and indicative credit ratings for the Project have not been attained
- The following table provides an overview of key comparable recent long-term debt issues which were all Canadian P3 projects with availability based payment structures:

Issuer	Location	Issue Date	Maturity Date	Term	Spread	Benchmark	Coupon	Amount	Ratings			Structure
									DBRS	Moody's	S&P	
					(bps)			C\$ millions				
Infrastructure / 3P												
Transed Partners GP	Edmonton, AB	Feb-16	Sep-50	35	265	Can 20 year	3.95%	\$395	A (low)	n/a	n/a	Amortizer
SGTP Highway Bypass LP	Regina, SK	Aug-15	Jul-49	34	195	Can 30 year	4.16%	\$141	n/a	A3	n/a	Bullet
SGTP Highway Bypass LP	Regina, SK	Aug-15	Jan-45	29	200	Can 20 year	4.11%	\$488	n/a	A3	n/a	Amortizer
Crosslinx Transit Solutions	Toronto, ON	Jul-15	Jun-51	36	240	Can 30 year	4.56%	\$167	n/a	Baa2	n/a	Bullet
Crosslinx Transit Solutions	Toronto, ON	Jul-15	Sep-46	31	247	Can 20 year	4.65%	\$565	n/a	Baa2	n/a	Amortizer
CE Sebastopol	Montréal, QC	Jun-15	Jul-47	32	186	Can 20 year	4.14%	\$144	n/a	A3	n/a	Amortizer
SSL Finance	Montréal, QC	Jun-15	Oct-45	30	188	Can 20 year	4.10%	\$577	n/a	A3	n/a	Amortizer
SSL Finance	Montréal, QC	Jun-15	Apr-49	34	183	Can 30 year	4.18%	\$111	n/a	A3	n/a	Bullet
Average				33	213		4.23%	\$324				

- The financings above were all done for greenfield P3 investments during the construction phase
 - All included some level of construction risk
 - Many of the issues were part of a larger debt package which included both long-term bonds and construction debt financing through the use of a revolver – no information available on the applicable spreads of the revolving facilities given the private nature of the financings
 - Amortizing bonds generally have an approximate 15 bps+ premium to bullet bonds with similar terms



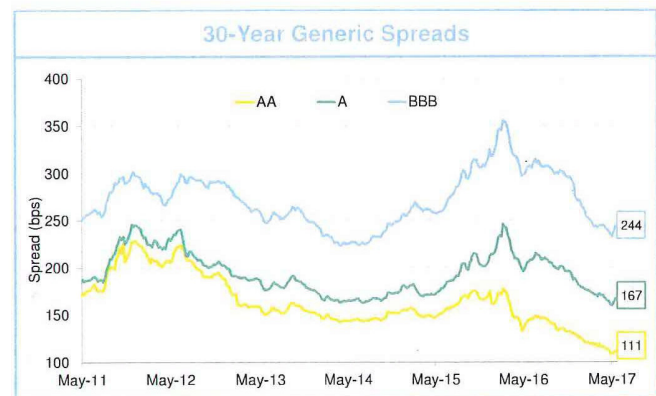
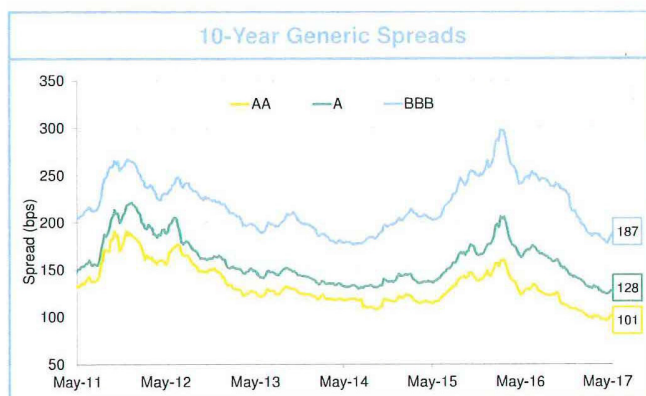
(1) See Appendix B for an overview of recent P3, infrastructure and government related issues
Source: Bloomberg data as at May 25, 2017

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Discount Rate Considerations – Cost of Debt

- In addition to recent new issuances, we also reviewed historical indicative generic spreads of AA, A and BBB rated 10-year and 30-year debt issuances over the past few years
 - Indicative spreads have come down significantly over the past few months and are near all-time lows
 - [REDACTED]
 - 30-year spreads are down significantly since that time
 - [REDACTED]
- The indicative generic spreads observed below are in-line with the average issuance spreads observed on the previous page at the time of their respective financings



Discount Rate Considerations – Cost of Debt

- Without the benefit of indicative credit ratings from the credit rating agencies, Blair Franklin has derived an estimated yield based on an assumed indicative credit rating for the purposes of our analysis
 - This is a difficult process that is outside the scope of Blair Franklin's assignment and expertise
 - Blair Franklin has assumed that the potential debt could achieve a Baa2 / BBB rating, largely based on: (i) review of comparable recent issues outlined on the previous page and (ii) strength of the ARTM and Québec⁽¹⁾ as the counter party
 - [REDACTED]
- An optimal financing structure could be one where the Project utilizes a project finance facility during the construction phase followed by a long-term bond takeout following substantial completion
 - [REDACTED]
 - Long-term bond takeout could feature three bullet structure with various maturities (i.e. 10-year, 20-year and 30-year) and tranche sizes to allow for a tiered repayment structure reducing total debt service costs in the early years
 - Have assumed three bullet bonds with a sinking fund rather amortizing bonds

REM Project Debt	Proj. Finance Facility		10-Year		20-Year		30-Year	
	Low	High	Low	High	Low	High	Low	High
Benchmark / Base Rate	BA / CDOR		Canada 2033		Canada 2043		Canada 2048	
Benchmark / Base Rate Yield	1.09%	1.12%	1.84%	1.84%	2.08%	2.08%	2.06%	2.06%
Spread Buildup (bps):								
Quebec Spread to Benchmark Canada ⁽²⁾	55	70	70	90	80	100	80	100
Project Spread to Quebec	70	90	90	120	130	160	130	160
Total Spread to Benchmark Canada	125	160	160	210	210	260	210	260
Implied Coupon / Yield	2.34%	2.72%	3.44%	3.94%	4.18%	4.68%	4.16%	4.66%
Selected Rounded Yield	2.50%		3.70%		4.40%		4.40%	

- Project finance facility could include interest rate hedging given it would be a floating rate facility – swap spread of approximately 15 bps could be expected

Alternative Scenarios Discount Rate Considerations

- Blair Franklin has reviewed the discount rate assumptions for the Alternative Scenarios outlined on pages 47 – 48 and further discussed in the preceding pages
 - Each scenario represents a different risk profile for investors given the changes to the Priority Return structure (reflected in a subordinated premium applied), debt to equity ratio and level of equity provided
 - Cost of debt based on the long-term cost of debt considerations discussed on the previous pages
- For each scenario we started with the return an investor would expect from a commercial, leveraged transaction and adjusted the returns based on the attributes of the security's position in the alternative structure
- Discount rates selected for the Proposed Structure as per discussion on page 24 and page 31
 - Discount rate for Pure Grant structure assumed to be equal to the discount rate applied to the [REDACTED] under the Proposed Structure
- Preferred Structure discount rate is below what a typical infrastructure investor would seek given there is no debt assumed in the structure providing equity holders with first rights on the cash flows
- Hybrid Structure assumes a discount rate for the [REDACTED] in-line with typical infrastructure funds given the Priority Return structure and impact of the cost of debt
 - [REDACTED] require a higher return given they are subordinate to both debt holders and [REDACTED]
- Commercial Structure assumes a discount rate in-line with target equity returns for infrastructure funds as outlined on page 23

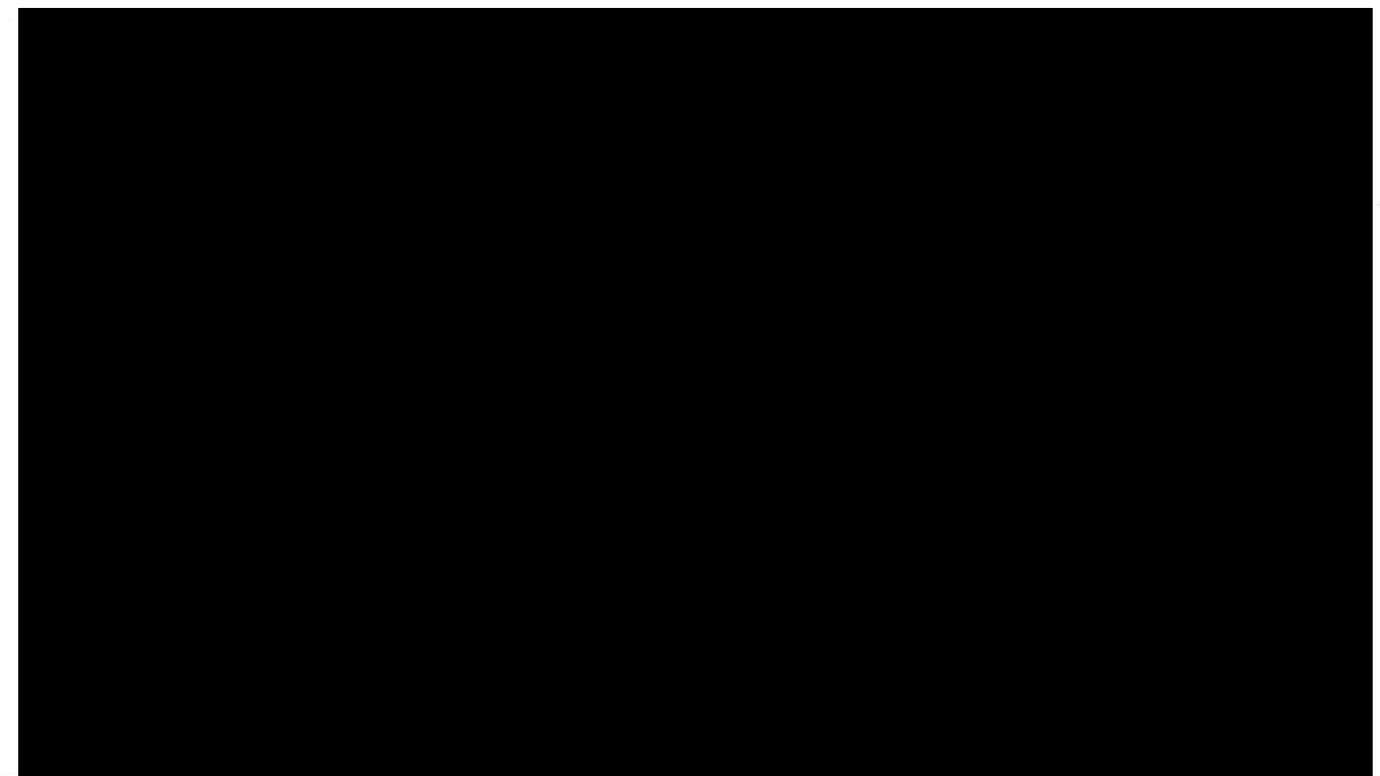
Cost of Funds	A2 - Proposed Structure				A3 - Preferred Return Structure		A4 - Hybrid Structure				A5 Commercial Structure	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Cost of Equity	6.0%	7.0%	14.0%	16.0%	6.0%	7.0%	9.5%	11.5%	15.0%	17.0%	10.0%	12.0%
[REDACTED]												
Blended Project Risk	6.2%		7.2%		6.0%	7.0%	6.0%		7.0%		6.1%	7.1%



Alternative Scenarios

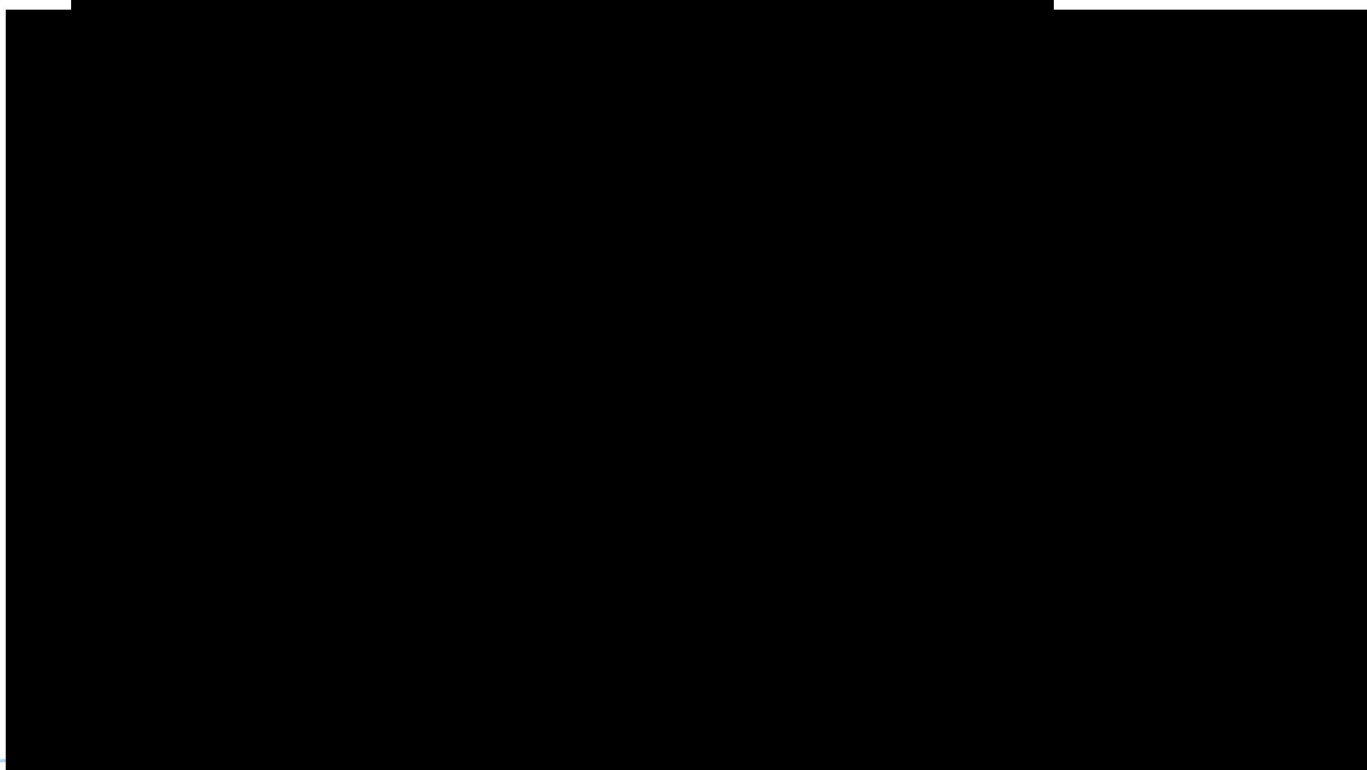
Alternative Scenario 1: Pure Grant

- In the "Pure Grant" scenario, Canada provides a financial commitment to the REM project with no ownership, return on capital or return of capital requirements



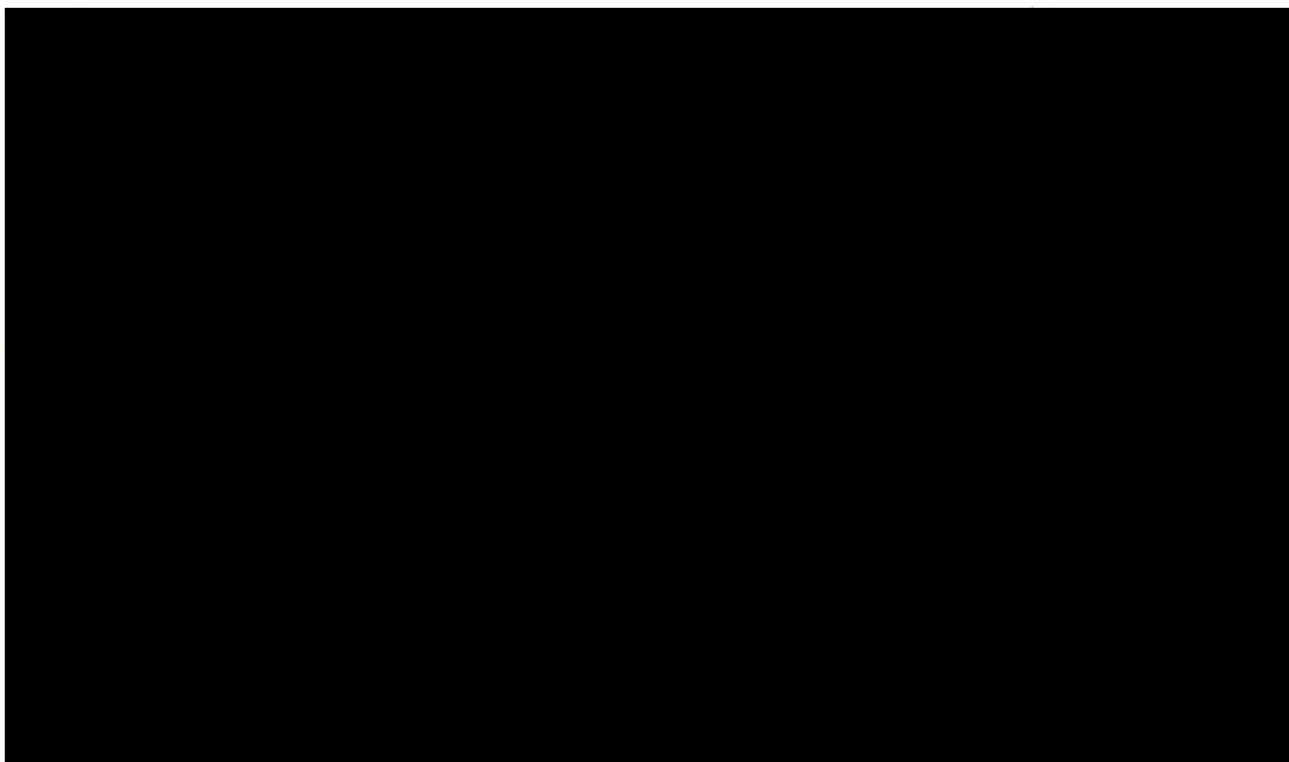
Alternative Scenario 2: Proposed Structure

- Assuming no sale (i.e. no terminal value), no refinancing and the estimated capital costs from the Hanscomb Report,



Alternative Scenario 2: Proposed Structure

- While the Proposed Structure is preferable from an NPV perspective to a pure grant, it comes with a number of additional risks



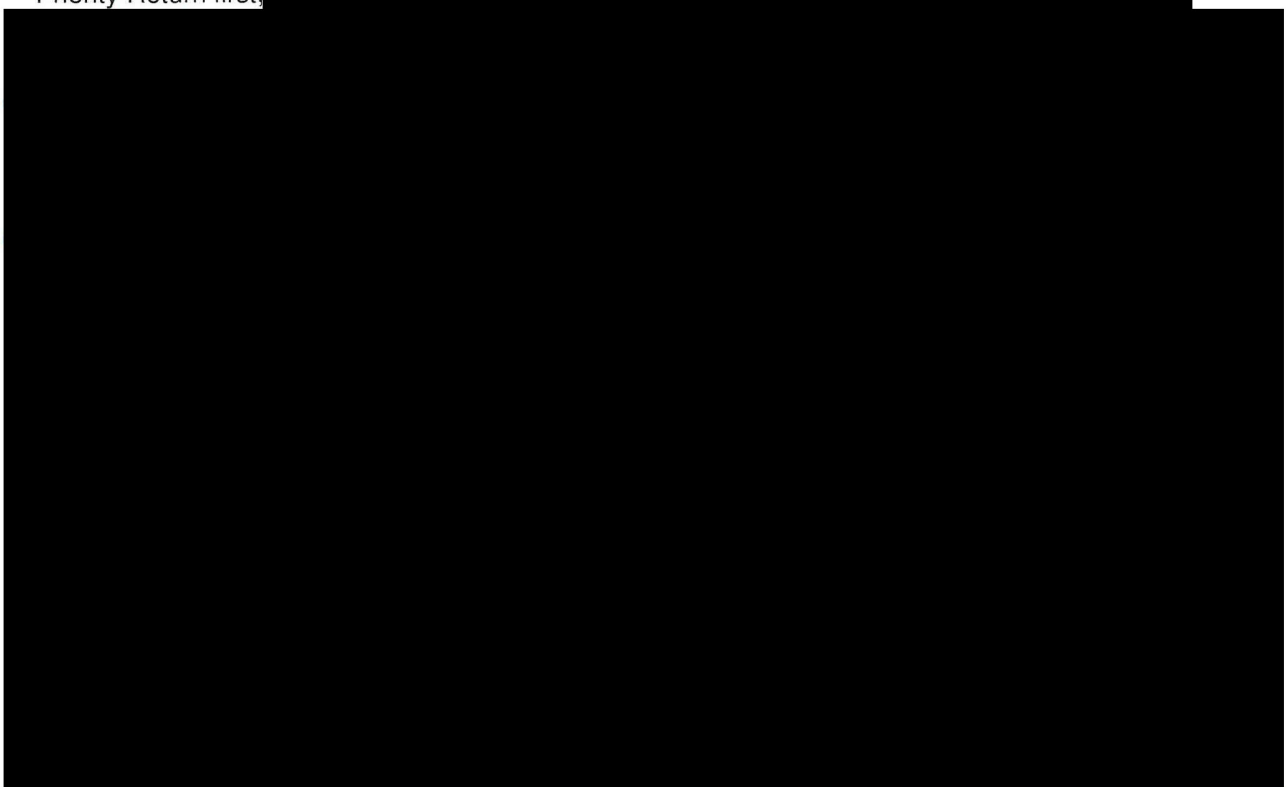
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ATIA-14(a)

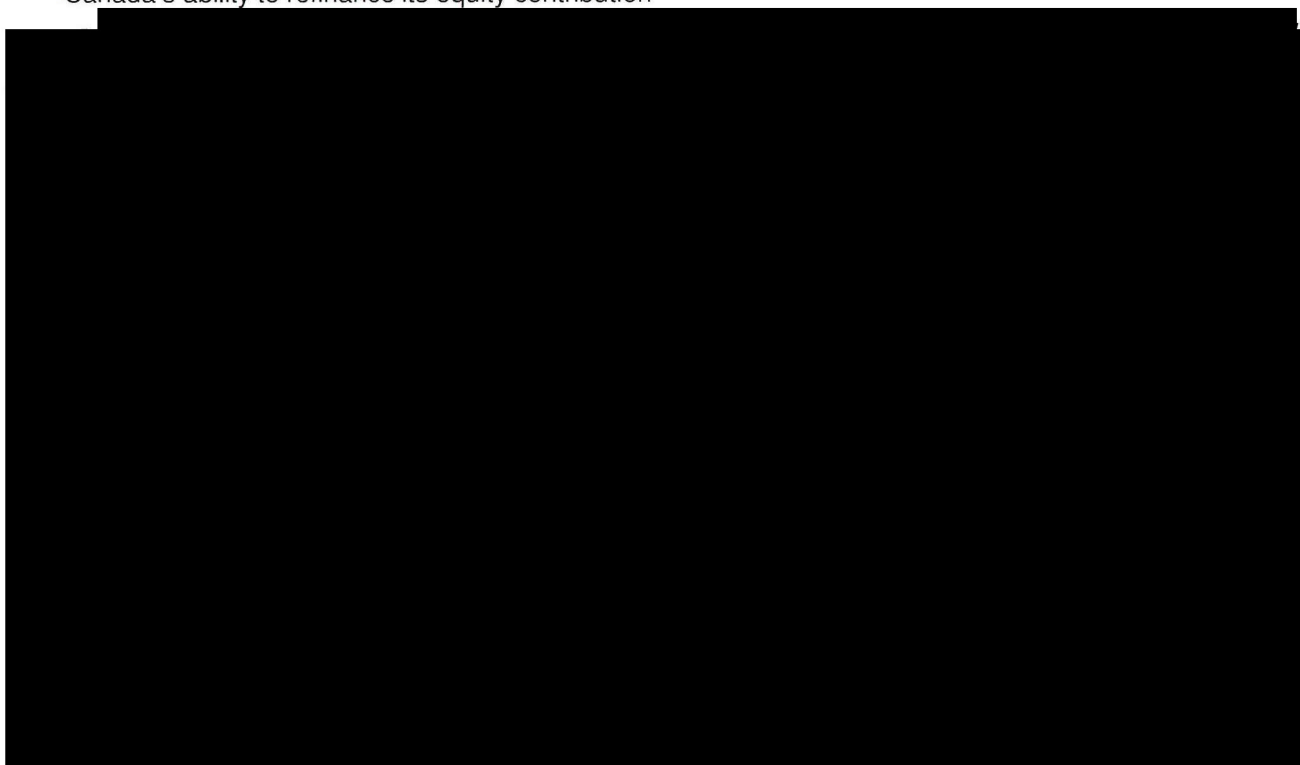
Alternative Scenario 3: Preferred Return Structure

- Project is funded in the same fashion as outlined by CDPQ although instead of CDPQ getting their 8% Priority Return first,



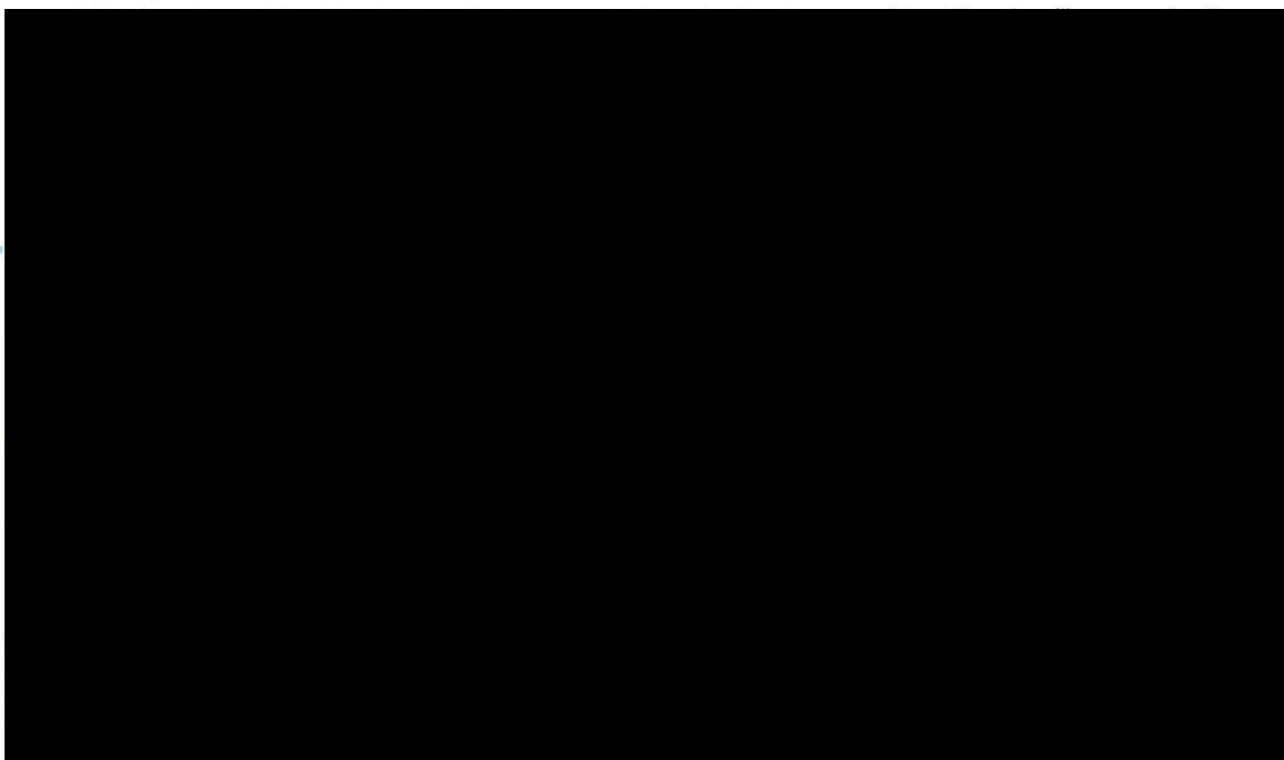
Alternative Scenario 3: Preferred Return Structure

- Removal of the Priority Return structure would provide a more market-based approach and improve Canada's ability to refinance its equity contribution



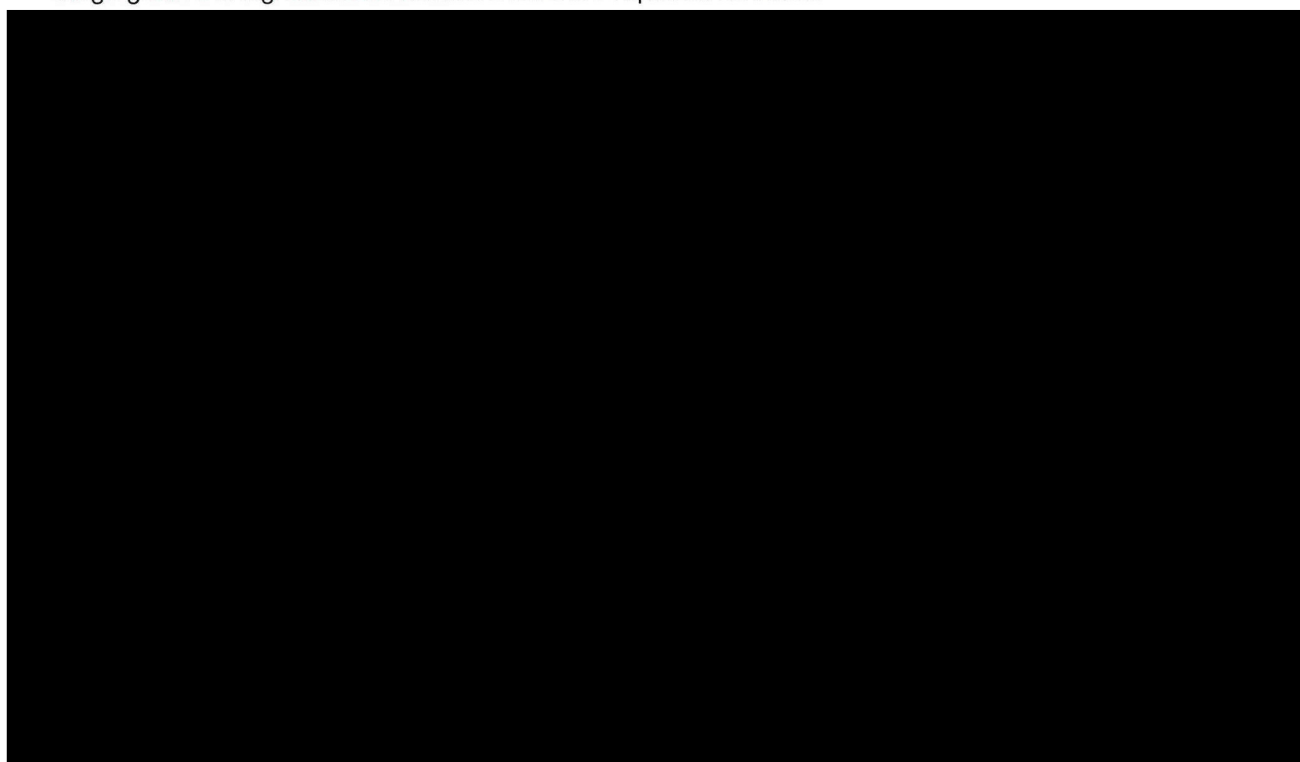
Alternative Scenario 4: Hybrid Structure

- Canada could consider a hybrid structure where Canada supports the project with both debt and equity investments



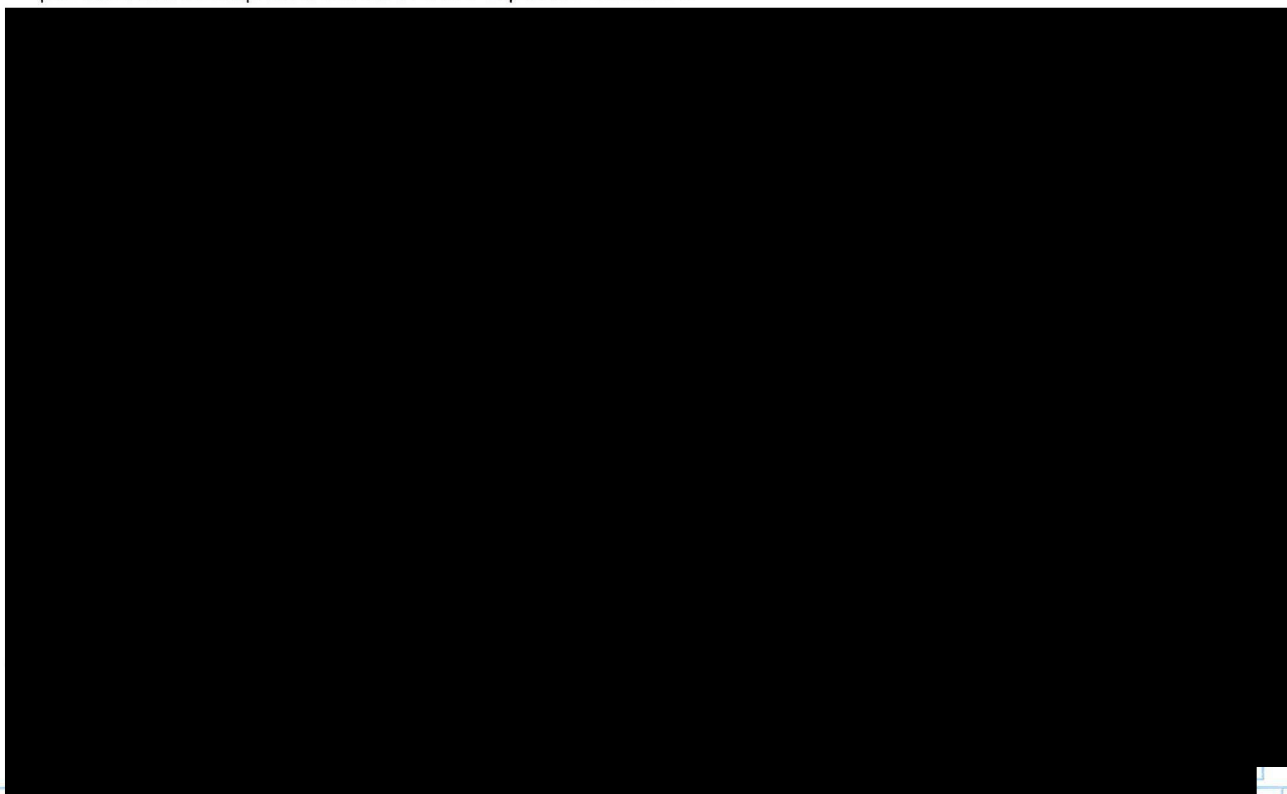
Alternative Scenario 4: Hybrid Structure

- Hybrid Structure provides a number of advantages to all parties but may be difficult to negotiate at this stage given the significant deviations from the Proposed Structure



Alternative Scenario 5: Commercial Structure

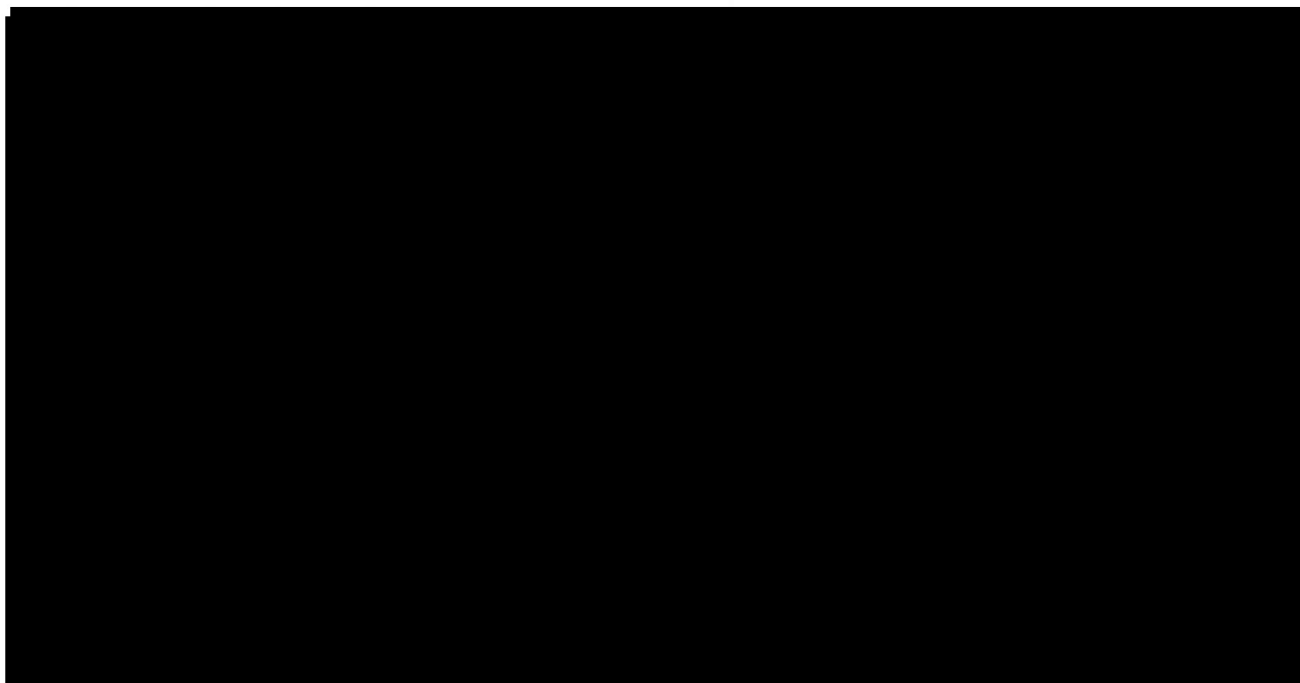
- Under a commercial structure, CDPQ, Québec and Canada all invest alongside each other with the same pro rata ownership interest as in the Proposed Structure



(1) Need an increase in the operating subsidy or other form of subsidy to make this structure viable

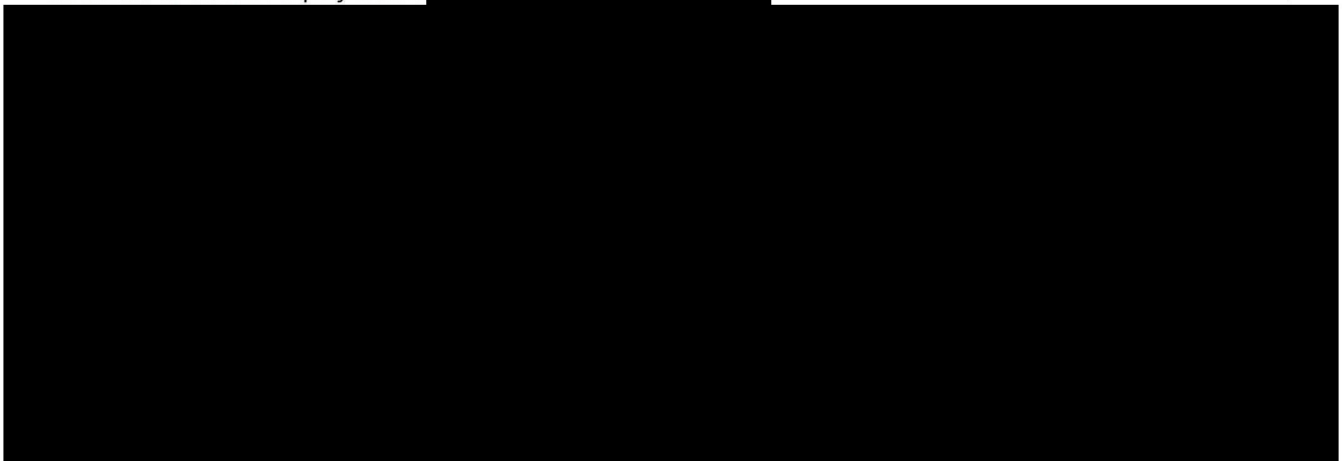
Alternative Scenario 5: Commercial Structure

- The commercial structure provides numerous benefits to Canada, however, it may be at odds with Canada's mandate to support infrastructure through government subsidies or grants
 - Participation of the Infrastructure Bank may provide an opportunity to set a precedent which differs from previous infrastructure investments



Alternative Scenarios Debt Service Coverage

- Blair Franklin has reviewed the estimated debt service coverage ratios ("DSCR") of both the Hybrid Structure and the Commercial Structure
 - There is no difference in the DSCRs of the Hybrid and Commercial Structure given they have the same debt financing assumptions (only difference is the mechanism for the sharing of equity cash flows between the two scenarios)
- Rating agencies typically seek minimum DSCRs of 1.40x over the life of a project for investment grade issues but may reduce the minimum DSCR required to 1.15x to 1.20x in unique scenarios for P3 projects where there is low counter-party credit risk with availability payment structures
 - Volume risk in the Project would likely result a higher minimum DSCR requirement but 1.20x used for illustrative purposes
- The following chart provides an overview of the DSCRs of the Project assuming the Hybrid or Commercial Structure at debt to equity ratios



Summary Comparison of Alternative Scenarios

- The alternative scenarios provide a wide range of values for the [REDACTED] as a percentage of contributed equity



Summary of Alternative Scenarios		
	Canada / Québec	CDPQ
	(in millions)	
<u>Equity Contributions (nominal)</u>		
Alternative Scenarios		
A1	Pure Grant	
A2	Proposed Structure	
A3	Preferred Return Structure	
A4	Hybrid Structure	
A5	Commercial Structure	
<u>Value as Percentage of Equity Contributed</u>⁽²⁾		
Alternative Scenarios		
A1	Pure Grant	
A2	Proposed Structure	
A3	Preferred Return Structure	
A4	Hybrid Structure	
A5	Commercial Structure	
<u>Internal Rate of Return</u>		
Alternative Scenarios		
A1	Pure Grant	
A2	Proposed Structure	
A3	Preferred Return Structure	
A4	Hybrid Structure	
A5	Commercial Structure	

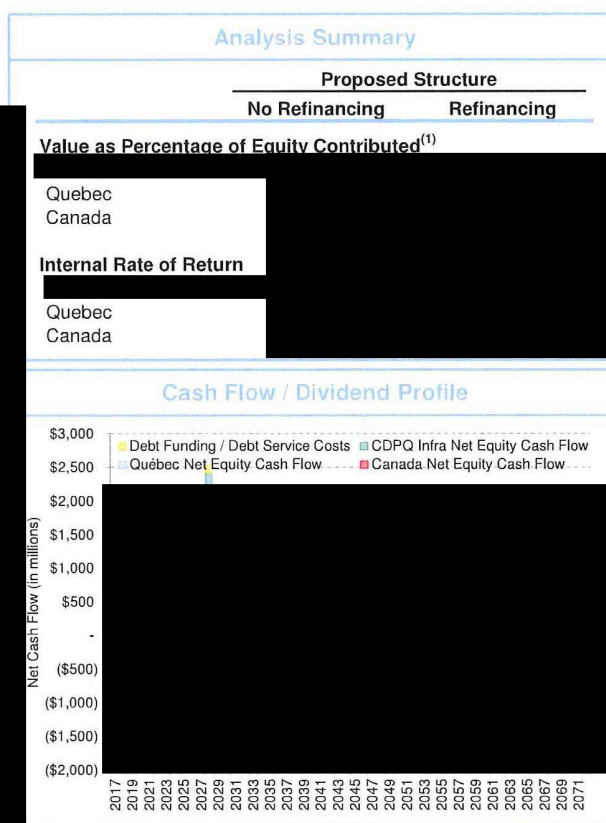
Scenarios Requested by Canada

Requested Scenarios Discount Rate Considerations

- Further to the discount rate discussion on pages 49 – 53, Blair Franklin has reviewed the estimated discount rates for each shareholder in the scenarios requested by Canada
- Requested Scenario 1: Proposed Structure, CDPQ Refinances – [REDACTED]
- Requested Scenario 2: Proposed Structure, Replace Canada with Commercial Debt
[REDACTED]
- Requested Scenario 3: Proposed Structure, Canada Provides a Grant – [REDACTED]
- Requested Scenario 4: Preferred Return Structure with Leverage – [REDACTED]
- Requested Scenario 5: Subsidy Value Scenario – [REDACTED]

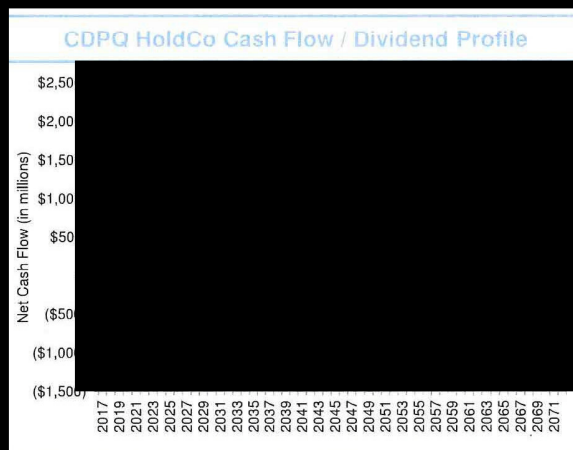
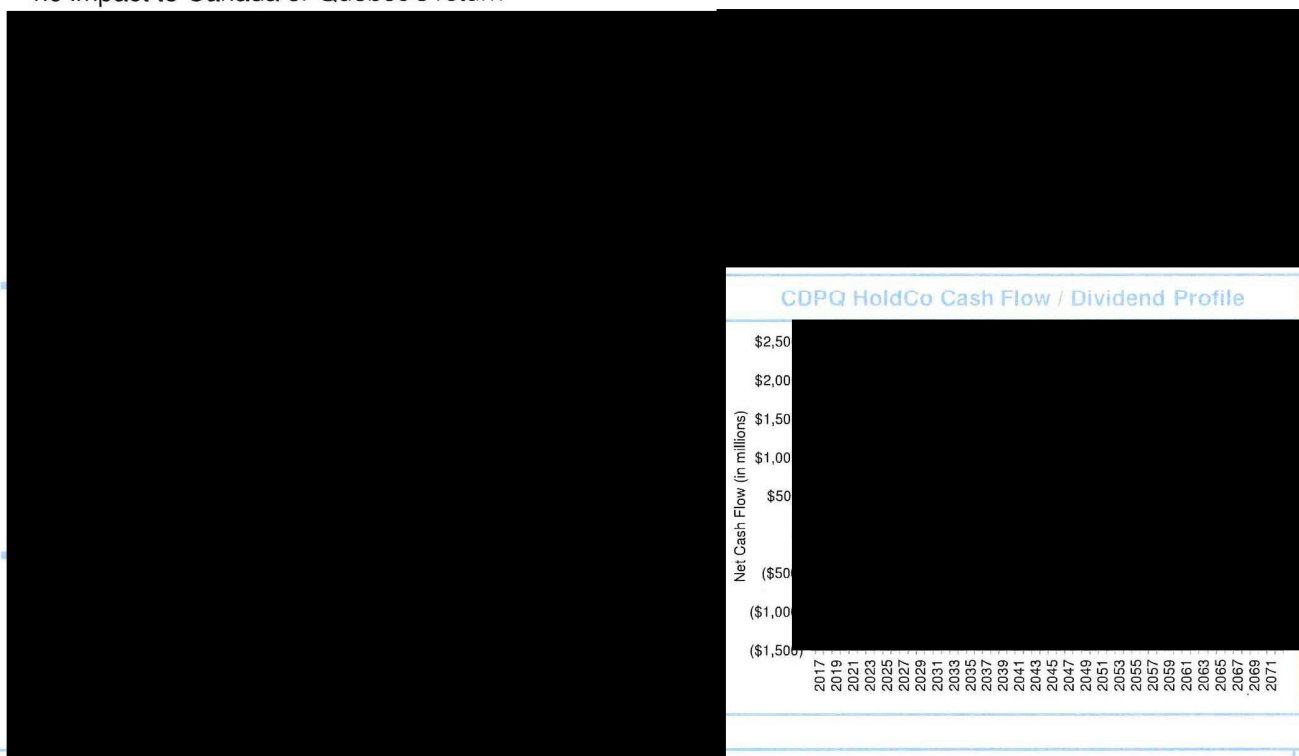
Requested Scenario 1: Proposed Structure, CDPQ Refinances

- This scenario assumes CDPQ refinances a portion of its equity at the ProjectCo level five years following substantial completion in 2028



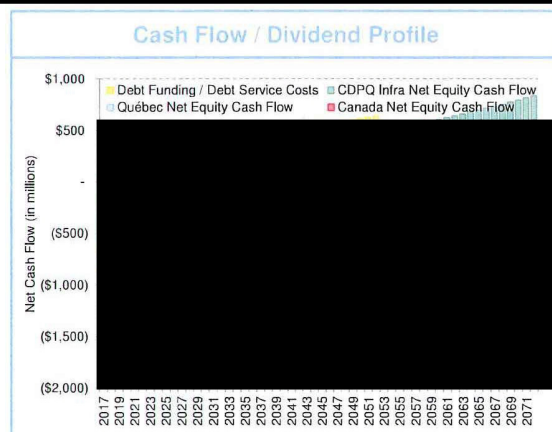
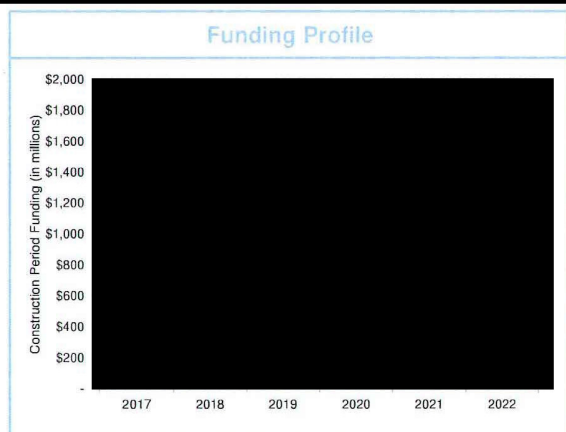
Requested Scenario 1: Proposed Structure, CDPQ Refinances

- Similar to the analysis on the previous page, Blair Franklin has also reviewed the impact of CDPQ refinancing at the HoldCo level [REDACTED] and there would be no impact to Canada or Québec's return



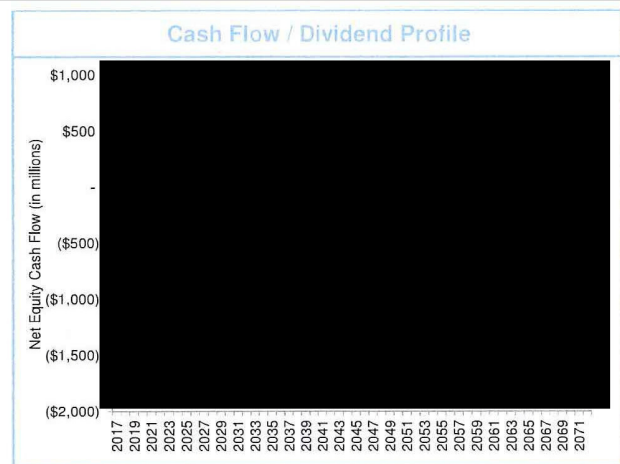
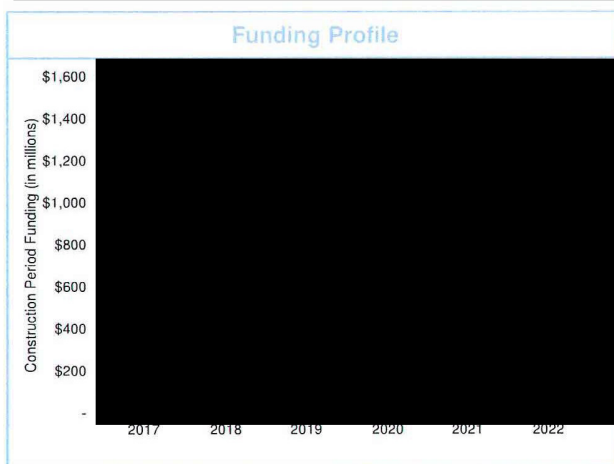
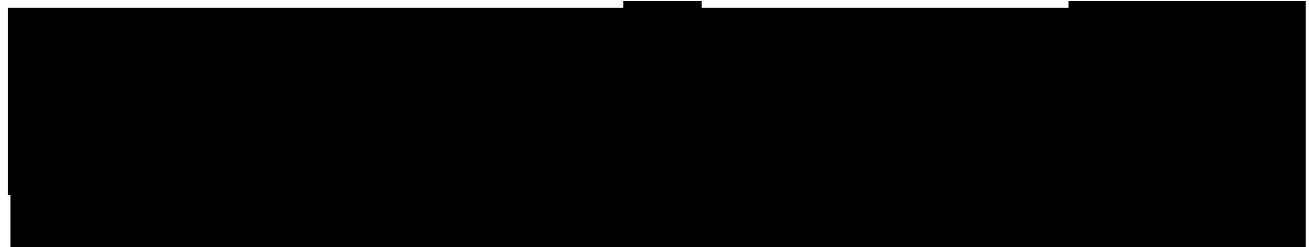
Requested Scenario 2: Replace Canada with Commercial Debt

- Should Canada decide not to make an investment in the Project, CDPQ could seek to replace Canada's investment with commercial debt while Québec will make its investment as per the Proposed Structure



Requested Scenario 3: Canada Provides a Grant

- This scenario assumes Canada provides a financial commitment to the REM project with no ownership, return on capital or return of capital requirements. However, unlike the Pure Grant scenario, [REDACTED]



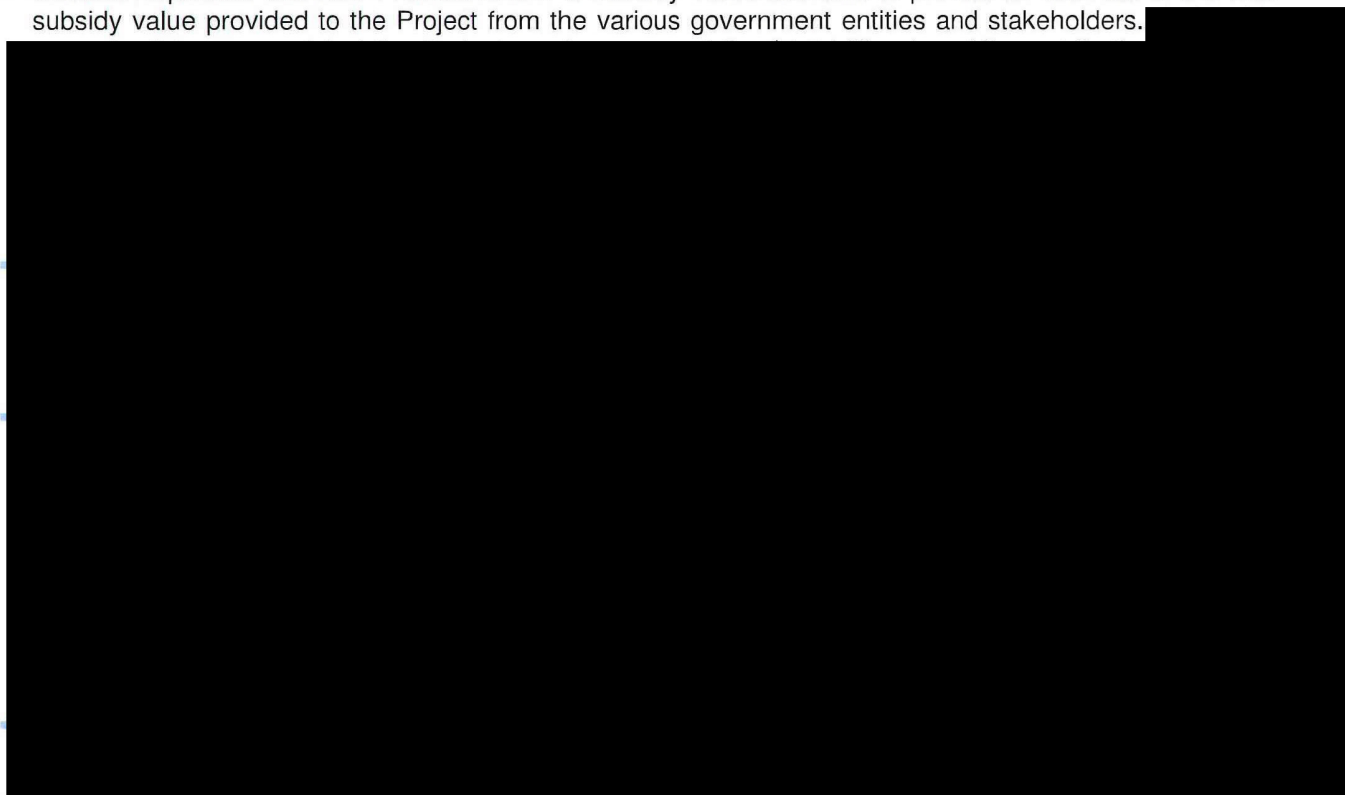
Requested Scenario 4: Preferred Return with Leverage

- This scenario contemplates a proposed structure similar to the Alternative Scenario 3 on page 58 and the Commercial Structure on page 62 but with a level of leverage to ensure each party achieves its minimum IRR requirements rather than utilizing [REDACTED]



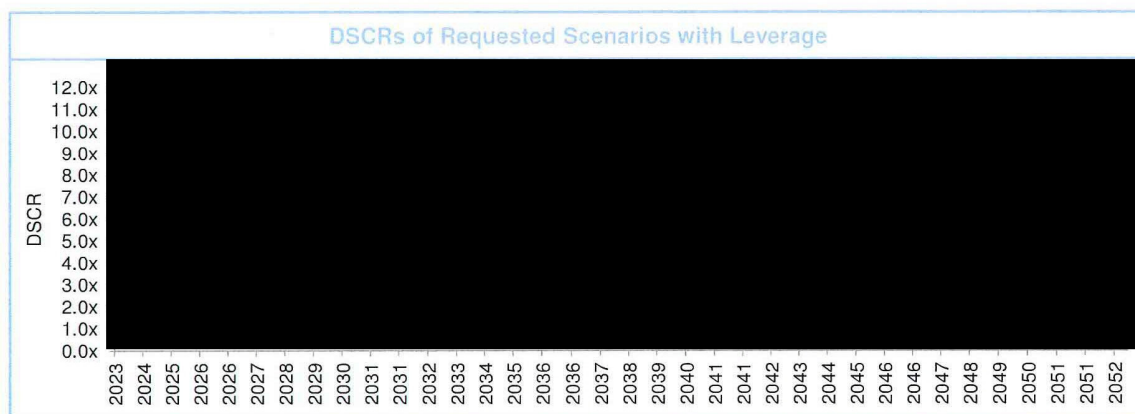
Requested Scenario 5: Subsidy Value Scenario

- Canada requested that Blair Franklin review a Subsidy Value scenario to provide an estimate of the total subsidy value provided to the Project from the various government entities and stakeholders.



Requested Scenarios Debt Service Coverage

- Similar to the analysis on page 64, Blair Franklin has reviewed the estimated DSCRs of the additional scenarios requested by Canada which employ leverage
- Scenarios requested by Canada all use a significantly lower amount of debt than the Hybrid or Commercial Structure
 - Requested Scenario 1: Proposed Structure where CDPQ refinances [REDACTED]
 - Requested Scenario 2: Proposed Structure replacing Canada's investment with commercial debt [REDACTED]
 - Requested Scenario 3: Preferred Return with Leverage scenario was optimized to use the minimum amount of debt required while maintaining the minimum return requirements for all investors [REDACTED]
- DSCRs would be well above the minimum requirements in all Requested Scenarios with leverage



Summary Comparison of All Scenarios

- The table to the right provides a comparison of all scenarios reviewed by Blair Franklin
- Discount rates used for calculating the value as a percentage of equity contributed are discussed on page 53 for the Alternative Scenarios and page 67 for the scenarios requested by Canada
- All scenarios assume a Base Tariff [REDACTED] as solved by Blair Franklin in the Proposed Structure to provide the minimum return requirement for each shareholder
 - Base Tariff was kept constant across all scenarios for ease of comparability
 - In practice, any change to the structure will result in an optimization of the Base Tariff to solve for the rate that provides each shareholder with their minimum return
- Selected structure and timing of cash flows has a significant impact on value and results in asymmetrical returns when comparing scenarios – impact of discounting not as large on the initial equity contributions but cash flows in later years are heavily discounted
 - Discount rates selected have a significant impact on the value as a percentage of equity contributed but do not impact the internal rate of return

Summary of All Scenarios	
	Canada / Québec CDPQ (in millions)
<u>Equity Contributions (nominal)</u>	
Alternative Scenarios	
A1	Pure Grant
A2	Proposed Structure
A3	Preferred Return Structure
A4	Hybrid Structure
A5	Commercial Structure
Requested Scenarios	
R1	Proposed Structure, CDPQ Refinances
R2	Proposed Structure, Replace Canada with Debt ⁽¹⁾
R3	Proposed Structure, Canada Provides a Grant ⁽¹⁾
R4	Preferred Return with Leverage
R5	Subsidy Value
<u>Value as Percentage of Equity Contributed⁽²⁾</u>	
Alternative Scenarios	
A1	Pure Grant
A2	Proposed Structure
A3	Preferred Return Structure
A4	Hybrid Structure
A5	Commercial Structure
Requested Scenarios	
R1	Proposed Structure, CDPQ Refinances
R2	Proposed Structure, Replace Canada with Debt ⁽¹⁾
R3	Proposed Structure, Canada Provides a Grant ⁽¹⁾
R4	Preferred Return with Leverage
R5	Subsidy Value
<u>Internal Rate of Return</u>	
Alternative Scenarios	
A1	Pure Grant
A2	Proposed Structure
A3	Preferred Return Structure
A4	Hybrid Structure
A5	Commercial Structure
Requested Scenarios	
R1	Proposed Structure, CDPQ Refinances
R2	Proposed Structure, Replace Canada with Debt ⁽¹⁾
R3	Proposed Structure, Canada Provides a Grant ⁽¹⁾
R4	Preferred Return with Leverage
R5	Subsidy Value

Appendix A – Independent Cost Assumptions

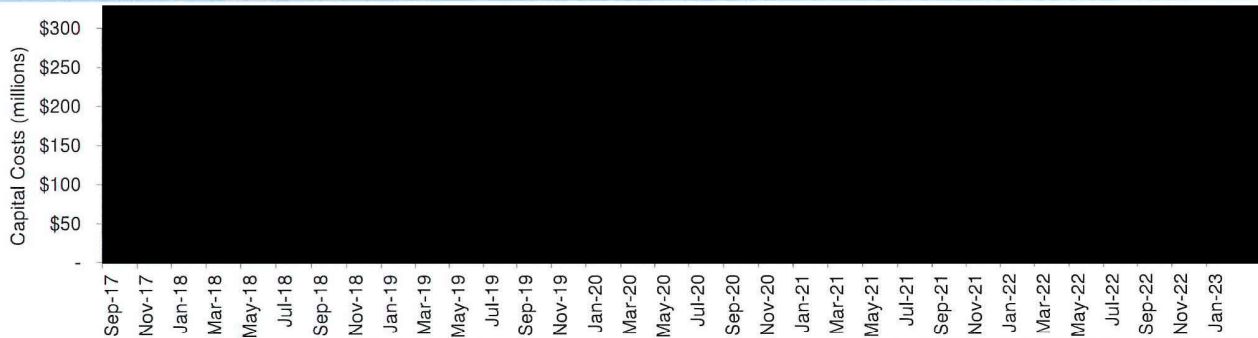
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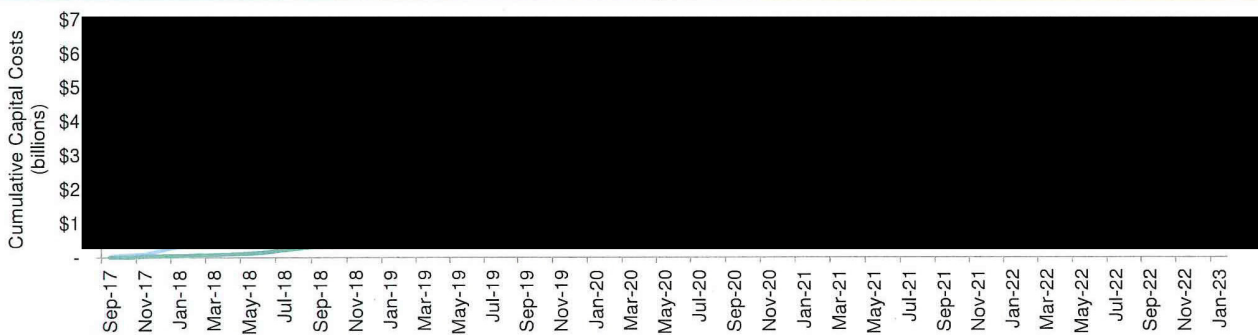
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Construction Cost Estimates Comparison

Monthly Capital Costs (excludes Owner Costs)



Cumulative Capital Costs (excludes Owner Costs)



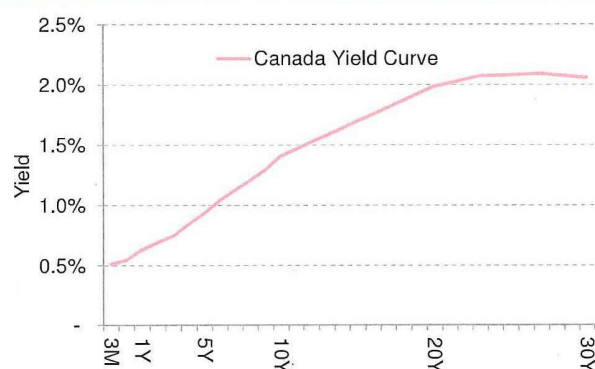
Appendix B – Debt Financing Assumptions

Interest Rate Assumptions – Canada

Canada Benchmark Bond Yield Assumptions

Bond	Maturity	Coupon	Yield	Spread to Canada
Canada Benchmark Bonds				
Canada 2-Yr	May-19	0.75%	0.70%	n/a
Canada 3-Yr	Mar-20	1.50%	0.75%	n/a
Canada 5-Yr	Mar-22	0.50%	0.94%	n/a
Canada 6-Yr	Jun-23	1.50%	1.05%	n/a
Canada 7-Yr	Jun-24	2.50%	1.13%	n/a
Canada 10-Yr	Jun-27	1.00%	1.41%	n/a
Canada 2029	Jun-29	5.75%	1.60%	n/a
Canada 2033	Jun-33	5.75%	1.84%	n/a
Canada 20-Yr	Jun-37	5.00%	1.99%	n/a
Canada 2041	Jun-41	4.00%	2.07%	n/a
Canada (interpolated)	Sep-43	n/a	2.08%	n/a
Canada 2045	Dec-45	3.50%	2.09%	n/a
Canada 30-Yr	Dec-48	2.75%	2.06%	n/a

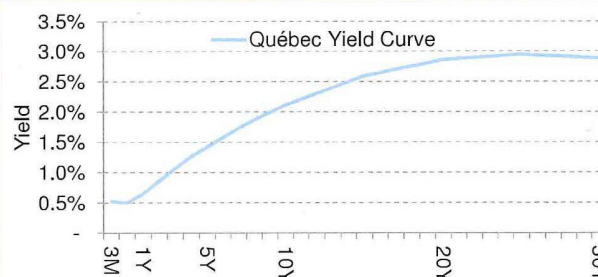
Canada Yield Curve



Province of Québec Bond Yield Assumptions

Bond	Maturity	Coupon	Yield	Spread to Canada
Québec Provincial Bonds				
Québec 2023	Sep-23	3.00%	1.68%	63
Québec 2032	Jun-32	6.25%	2.59%	n/a
Québec (interpolated)	Jul-33	n/a	2.65%	81
Québec (interpolated)	Sep-34	n/a	2.71%	n/a
Québec 2036	Dec-36	5.75%	2.84%	85
Québec 2041	Dec-41	5.00%	2.94%	87
Québec 2043	Dec-43	4.25%	2.95%	86
Québec 2045	Dec-45	3.50%	2.95%	85
Québec 2048	Dec-48	3.50%	2.92%	87

Québec Yield Curve



Source: Bloomberg data as at May 30, 2017

Recent New Canadian Infrastructure / P3 Debt Issuances

Issuer	Issue Date	Maturity Date	Term	Spread (bps)	Benchmark	Coupon	Amount C\$ millions	Ratings		
								DBRS	Moody's	S&P
Infrastructure / P3										
Aéroports De Montreal	Apr-17	Apr-47	30	120	Can 30 year	3.36%	\$250	A (high)	A1	n/a
407 International	Mar-17	Jun-33	16	122	Can 2033	3.43%	\$250	A	n/a	A
South Coast British Transport Authority (Translink)	Dec-16	Jun-44	28	133	Can 30 year	4.45%	\$150	AA (low)	Aa2	n/a
407 International	Nov-16	May-27	11	112	Can 10 year	2.43%	\$350	A	n/a	A
Plenary Health Vaughan LP	Oct-16	Feb-50	33	160	Can 30 year	3.86%	\$278	n/a	A3	n/a
University of Ottawa	Oct-16	Oct-56	40	152	Can 30 year	3.26%	\$200	BBB (high)	A2	n/a
Mountain View Partners	Sep-16	Mar-51	35	215	Can 30 year	3.97%	\$281	A (low)	A3	n/a
Sinai Health System	Jun-16	Jun-56	40	164	Can 30 year	3.53%	\$40	n/a	Aa2	n/a
407 International	May-16	May-47	31	162	Can 30 year	3.60%	\$500	A	n/a	A
NAV Canada	Feb-16	Feb-46	30	172	Can 30 year	3.53%	\$250	AA (low)	Aa2	AA-
Transted Partners GP	Feb-16	Sep-50	35	265	Can 20 year	3.95%	\$395	A (low)	n/a	n/a
McGill University	Jan-16	Jan-56	40	191	Can 30 year	3.98%	\$160	n/a	Aa2	AA-
Vancouver International Airport Authority	Nov-15	Nov-45	30	149	Can 30 year	3.86%	\$200	AA (low)	n/a	AA
PSS Generating Station	Oct-15	Oct-67	52	247	Can 30 year	4.80%	\$245	A (low)	n/a	n/a
Access Prairies Partnership	Sep-15	Mar-48	33	210	Can 20 year	4.23%	\$181	n/a	A3	n/a
SGTP Highway Bypass LP	Aug-15	Jul-49	34	195	Can 30 year	4.16%	\$141	n/a	A3	n/a
SGTP Highway Bypass LP	Aug-15	Jan-45	30	200	Can 20 year	4.11%	\$488	n/a	A3	n/a
Crosslinx Transit Solutions	Jul-15	Jun-51	36	240	Can 30 year	4.56%	\$167	n/a	Baa2	n/a
Crosslinx Transit Solutions	Jul-15	Sep-46	31	247	Can 20 year	4.65%	\$565	n/a	Baa2	n/a
CE Sebastopol	Jun-15	Jul-47	32	186	Can 20 year	4.14%	\$144	n/a	A3	n/a
SSL Finance	Jun-15	Oct-45	30	188	Can 20 year	4.10%	\$577	n/a	A3	n/a
SSL Finance	Jun-15	Apr-49	34	183	Can 30 year	4.18%	\$111	n/a	A3	n/a
Aéroports de Montréal	Jun-15	Jun-45	30	147	Can 30 year	3.98%	\$200	A (high)	A1	n/a
Ottawa MacDonald-Cartier International Airport	Jun-15	Jun-45	30	169	Can 30 year	3.93%	\$300	A (high)	Aa3	A+
407 International Inc	May-15	May-46	31	144	Can 30 year	3.83%	\$500	A	n/a	A
Shield Infrastructure Partnership	Mar-15	Jun-41	26	164	Can 30 year	3.36%	\$136	n/a	A1	n/a
Plenary Infrastructure ERMF GP	Mar-15	Aug-47	32	169	Can 20 year	3.56%	\$183	n/a	n/a	A-
407 International Inc	Mar-15	Mar-45	30	135	Can 30 year	3.30%	\$150	A	n/a	A
Blackbird Infrastructure 407 GP	Mar-15	Jun-47	32	165	Can 20 year	3.76%	\$108	A (low)	A3	n/a
North West Redwater Partnership	Feb-15	Feb-43	28	160	Can 30 year	3.70%	\$500	n/a	A3	A-
Integrated Team Solutions SCOC Partnership	Dec-14	Oct-41	27	169	Can 20 year	3.78%	\$105	A (low)	n/a	n/a
Average			33	138		3.94%	\$264			